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This report consolidates the Structured Analysis and Structured Design for the Logistic Support Analysis (LSA) Tasks. Included are the Data Flow Diagrams (DFDs) for the LSA Subtask 402.2.5, "Plans for Problem Resolution", with the corresponding descriptions of the processes, data flows, data stores, and external entities identified on each DFD. The DFDs are further developed into procedures which identifies how to use the data to carry out the processes and accomplish the LSA Subtask. Venture Evaluation Review Technique (VERT) Batch Input files are also provided to assist, as tools, giving both technical and managerial aspects of a task.			
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**STRUCTURED ANALYSIS/DESIGN**

**LSA TASK 402**

**EARLY FIELDING ANALYSIS**

**SUBTASK 402.2.5  
PLANS FOR PROBLEM RESOLUTION**

**APJ 966-264**

**APJ**



**AMERICAN POWER JET CO. RIDGEFIELD N.J.**

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**STRUCTURED ANALYSIS/DESIGN**

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**LSA TASK 402  
EARLY FIELDING ANALYSIS**

**SUBTASK 402.2.5  
PLANS FOR PROBLEM RESOLUTION**

**under**

**CONTRACT DAAA21-86-D-0025**

**for**

**HQ US AMCCOM  
INTEGRATED LOGISTIC SUPPORT OFFICE  
AMSMC-LSP  
ROCK ISLAND, IL**

**by**

**AMERICAN POWER JET COMPANY**  
**RIDGEFIELD, NJ**                      **FALLS CHURCH, VA**  
**WILLIAMSBURG, VA**                **ST. LOUIS, MO**

**May 1990**

## FOREWORD

APJ, under contract to HQs, AMCCOM, has initiated the automation of the LSA Tasks (MIL-STD-1388-1) and the assessment of the ILS elements (AR 700-127). A major goal is to unify military and contractor approach to the performance of ILS and LSA.

Detailed to meet all requirements of ILS and LSA, the automated process will continue to provide the flexibility in selecting tasks and elements to be addressed at each life cycle stage. A major advantage of this approach is to insure that the application of each task element is consistent with prescribed Army policies and procedures.

This report consolidates the Structured Analysis and Structured Design under one cover for the respective LSA Task. Structured Analysis provides a logical model of the method to perform an LSA Task. This logical model facilitates the development of a Structured Design that provides the detailed procedures to perform the analysis. Both the logical model and detailed procedures are used to develop the application software programs which will be provided to Government and contractor personnel to assist in the performance of the LSA Task.

Included in this report are the Data Flow Diagrams (DFDs) for LSA Subtask 402.2.5, "Plans for Problem Resolution", and the corresponding descriptions of the processes, data flows, data stores, and external entities identified on each DFD (Annex B). In addition, the DFDs are further developed into step-by-step procedures (Annex C) which identifies how to use the data to carry out the processes which ultimately leads to accomplishing the LSA Subtask.

To assist managers in planning and controlling this task, Venture Evaluation Review Technique (VERT) Batch Input files are provided (Annex D). These VERT tools provide government agencies with complete packages to give contractors that cover both technical and managerial aspects of a task. This approach establishes a standardized form of communication and management between contractors performing the task and government personnel reviewing the task.

To view this work in context, this report also presents a brief overview of Structured Analysis and its place in the overall systems development process. Additionally, Annex E provides a brief working description of Structured Systems Analysis fundamentals. The overview and certain portions of the introductory text are repeated verbatim in every report in this series so that each report is free standing.

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## INTRODUCTION

### PURPOSE

The purpose of this report series is to present the results of the APJ Structured Analysis/Design under Contract DAAA21-86-D-0025 for coordination with the AMCCOM Program Manager prior to in-depth programming of ILS and LSA functions and processes. LSA Task 402, "Early Fielding Analysis", (LSA Subtask 402.2.5, "Plans for Problem Resolution") is addressed in this report.

### BACKGROUND

The Department of the Army has a requirement for management control over contractor and Government agency response to the requirements of AR 700-127, "Integrated Logistic Support", and MIL-STD-1388-1, "Logistic Support Analysis". HQs AMCCOM has initiated action to structure each of the LSA tasks, the assessment of each ILS element, the form of the results, and the detailed processes to insure consistency with current Army policies, procedures, and techniques.

This approach (undertaken by AMCCOM and APJ) will insure uniformity in efforts and products, reproducibility of analyses, and a well-defined structure which can be coordinated among all participants in the logistic process to arrive at common understanding and procedures.

### SCOPE

This report summarizes the results of the Structured Analysis of the identification of LSA Task 402, "Early Fielding Analysis", LSA Subtask 402.2.5, "Plans for Problem Resolution", and presents the associated Data Flow Diagrams (DFDs) developed from the Structured Analysis and the corresponding procedures developed in the Structured Design. The portions of the Data Dictionary relating to the DFDs for this LSA Subtask includes the labels, names, descriptions, processes, data flows, data stores, and external entities. (The Data Dictionary is a "living document" that evolves through the analysis and design process).

The Data Dictionaries developed for each of the individual LSA Subtasks are integrated together into a Master Data Dictionary. Integration of the individual Data Dictionary involves the combination of similar Data Flows, Data Stores, and External Entities. The resulting Master Data Dictionary may well contain some minor differences from the definitions that appear in this report. All processes, and of course, the content of the structured design will remain identical.

The Structured Design portion of this report develops the processes and data flows developed in the DFDs into procedures which are used to accomplish the LSA Tasks. The DFDs provide the method and the Design implements it, by formulating a guide for programmers to write software applications.

This report presents a brief overview of Structured Analysis and its place in the overall systems design process to assist the reader who may not be fully briefed on the symbols and conventions used. It is supported by Annex E, which defines each element in Structured Analysis.

#### LSA SUBTASK 402.2.5 - DESCRIPTION

LSA Subtask 402.2.5 concerns the development of plans to implement solutions to problems surfaced in the assessments listed below:

402.2.1 - Assess the impact on existing and planned programs (weapon, supply, maintenance, transportation) from the introduction of the new system/equipment.

402.2.2 - Analyze existing manpower and personnel to determine sources to obtain the required manpower and personnel for the new system/equipment. Determine the impact on existing operational systems from using the identified sources for manpower and personnel.

402.2.3 - Assess the impact on system/equipment readiness resulting from failure to obtain the required logistic support resources in the quantities required.

402.2.4 - Conduct survivability analysis to determine changes in logistic support resource requirements based on combat usage. These analysis shall be based on threat assessments, projected combat scenarios, system/equipment vulnerability, battle damage repair capabilities, and combat essentialities.

Task output comprises three aspects: (1) The impact from the introduction of the new system/equipment on current and planned weapon and support systems, sources of manpower and personnel skills to satisfy the manpower and personnel requirements of the new system/equipment, (2) Readiness impacts from failure to obtain required logistic support resources to operate and maintain the new system/equipment, and (3) Essential logistic support resource requirements for a combat environment and identification of sources to satisfy these requirements and plans to alleviate problems recognized during the performance of Subtasks 402.2.1 through 402.2.4.

The LSA Task Description with associated task inputs and outputs is extracted from MIL-STD-1388-1A and is included as Annex A.

### APPROACH

The APJ approach to Structured Analysis and Structured Design of an LSA Subtask is:

1. Scope the Subtask defined in MIL-STD-1388-1A with the overall task and determine its relationship with other LSA Tasks.
2. Review all pertinent documentation (e.g., ARs, MIL-STDs, etc.) applicable to the specific topic.
3. Prepare the Top Level DFDs in context of the Subtask, and develop lower level DFDs to further quantify any complex process identified in the top level DFD.
4. Complete the Data Dictionary portion of the Analysis by describing all processes, data flows, data stores and external entities.
5. Apply staff experience in logistic support analysis to assure that the topic has been exhaustively addressed.
6. From the completed DFDs, prepare the step-by-step procedures that form the structured design.
7. Review Data Item Description and other applicable material to develop output reports.
8. If required revise DFDs and Data Dictionary based on preparation of detailed procedures.
9. Validate results in discussions with Army activities and personnel directly involved in the applicable or related LSA tasks.

**NOTE:** Structured Analysis and preparation of Data Flow Diagrams (DFDs) was further assisted by the application of Structured Analysis software. Licensed by Index Technology Corporation, Excelerator provides for automated tracking of names, labels, descriptions, multiple levels of detail in the data flow diagrams, and industry standards in symbols and diagramming practices.



## LSA SUBTASK 402.2.5 - PLANS FOR PROBLEM RESOLUTION

The Data Flow Diagram is a tool that shows the flow of data, (i.e., data flows from sources) and is processed by activities to produce intermediate or final products.

The DFD provides a useful and meaningful partitioning of a system from the viewpoint of identification and separation of all functions, actions, or processes so that each can be introduced, changed, added, or deleted with minimal disruption of the overall program, i.e., it emphasizes the underlying concept of modularity and identifiable transformations of data into actionable products.

A series of four (4) DFDs have been developed to structure the LSA subtask relative to development of plans to alleviate problem recognized in early fielding analysis:

1. 402.2.5 Plans for Problem Resolution
2. 402.2.5.1A Consolidate Deficiencies in Early Fielding Requirements
3. 402.2.5.2A Develop Corrective Action Plans
4. 402.2.5.3A Implementation of Plans

Each DFD is keyed to the specific task through the identification number assigned in the lower right hand box. The Alpha codes indicate the level of indenture or explosion below the top level, i.e.,:

Top Level.....LSA DFD 402.2.5  
First Indenture.....LSA DFD 402.2.5.1

Each DFD makes reference to the basic LSA task it addresses, as well as the level of indenture (explosion) of the DFD. For example, the first or top level DFD, "402.2.5", refers to the section in MIL-STD-1388-1A which describes the review items. One of the processes (bubbles) on the top level diagram (402.2.5.1) is expanded and identified as "402.2.5.1A", a second level of "402.2.5.1" (Alpha "A" indicates the second level).

Four standard symbols are used in the drawing of a DFD (see Annex E - Figure 1).

A copy of each DFD is presented in Annex B, accompanied by the Data Dictionary elements. Each entry made in the DFDs has a corresponding entry in the Data Dictionary.

This presents only those Data Dictionary entries necessary for the coordination of the overall concept and details of the processes. To facilitate review of the diagrams, data flow external entity, and data store descriptions are provided.

#### VERT DIAGRAMS

The Venture Evaluation Review Technique (VERT) was developed as a network analysis technique to facilitate management decision making. It allows systematic planning and control of programs and enables managers to find solutions to real life managerial problems. The VERT Diagrams and Input Files for this task can be found in Annex D. In order to understand how these Input Files were developed, a brief discussion of the methodology used is provided. The same explanation is repeated verbatim in every report.

**ANNEX A**

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**LSA TASK 402  
EARLY FIELDING ANALYSIS**

ANNEX A  
LSA TASK 402  
EARLY FIELDING ANALYSIS 1/

402.2 PURPOSE:

To assess the impact of introduction of the new system/equipment on existing systems, identify sources of manpower and personnel to meet the requirements of the new system/equipment, determine the impact of failure to obtain the necessary logistic support resources for the new system/equipment, and determine essential logistic support resource requirements for a combat environment.

402.2.5 TASK DESCRIPTION:

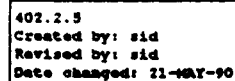
Develop plans to implement solutions for problems surfaced in the above assessments and analysis.

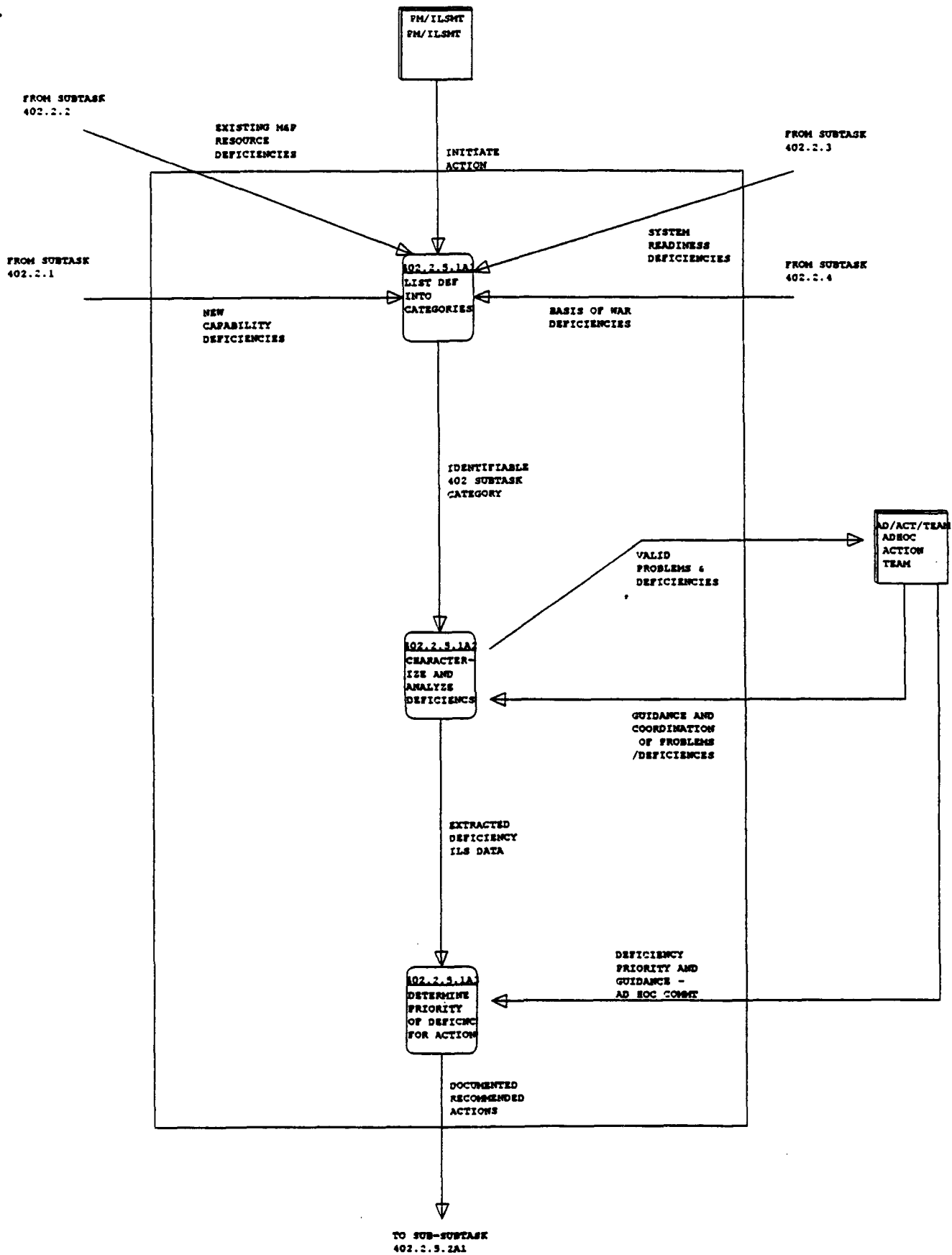
## **ANNEX B**

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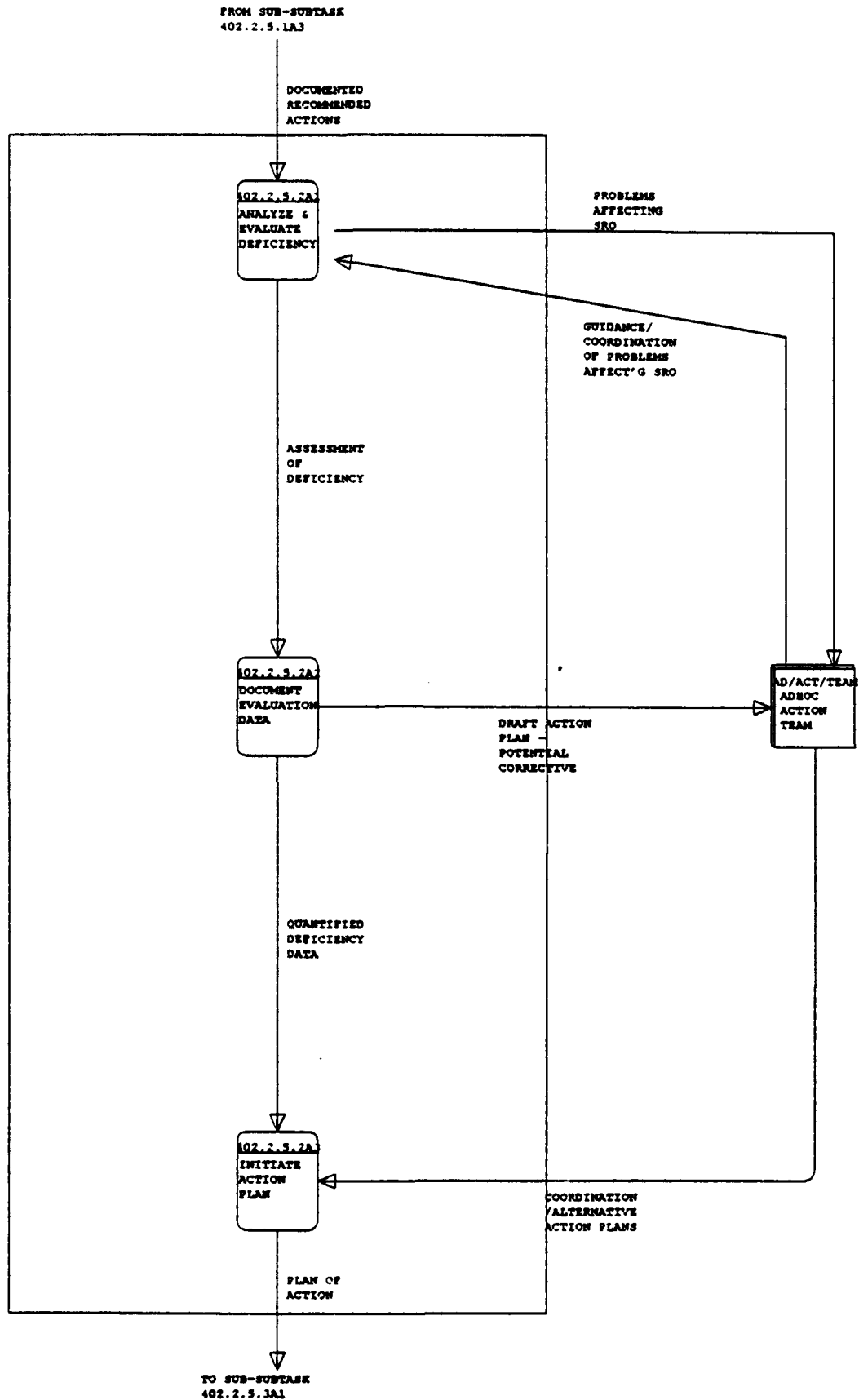
### **SUBTASK 402.2.5**

#### **PLANS FOR PROBLEM RESOLUTION DATA FLOW DIAGRAMS AND PROCESS DATA DICTIONARY**



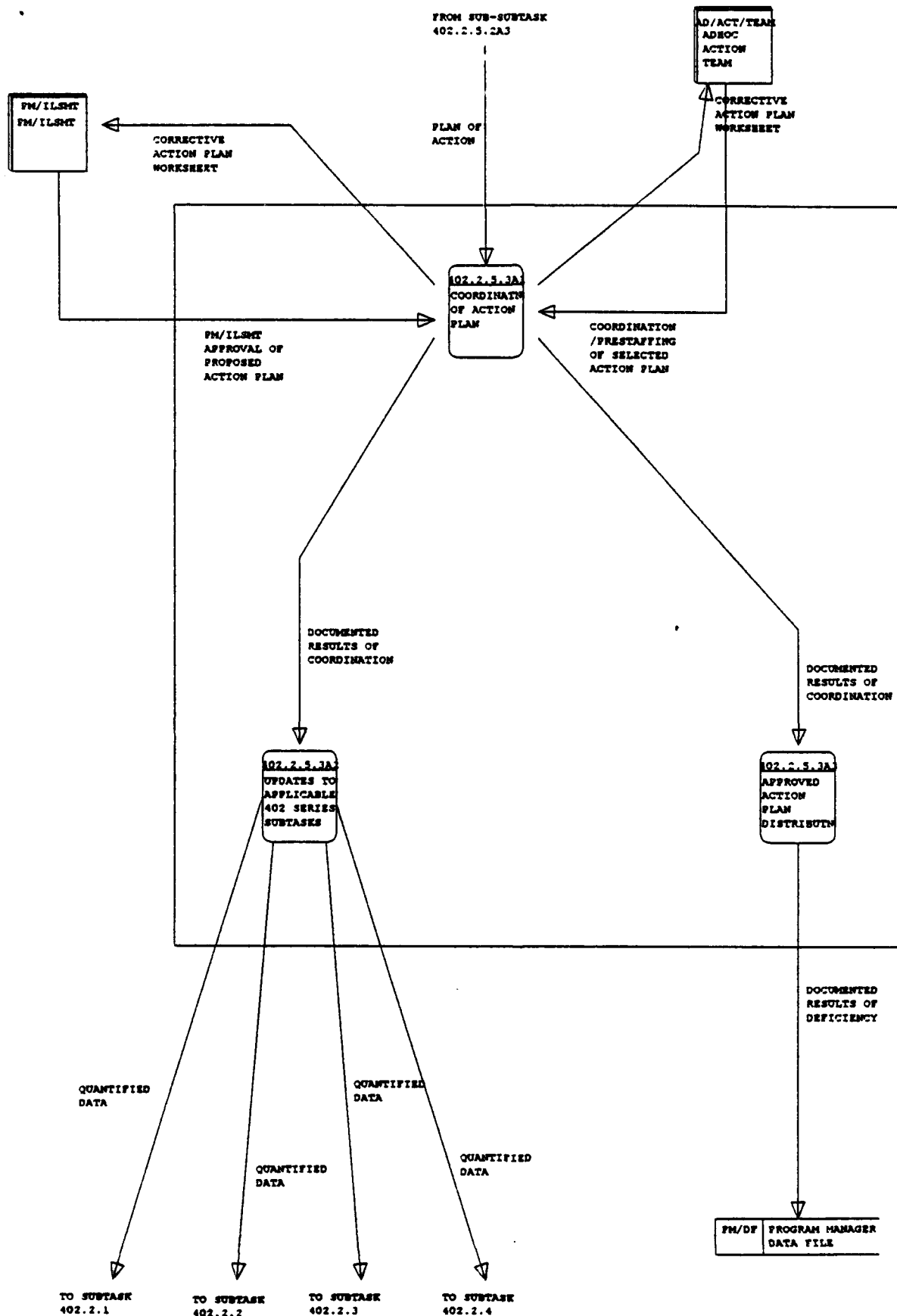


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Revised by: JMC  
Date changed: 14-MAY-90



402.2.5.2A  
Created by: sid  
Revised by: JMC  
Date changed: 14-MAY-90





402.2.5.3A  
Created by: sid  
Revised by: JMC  
Date changed: 14-MAY-90

Name	Label	Description
402.2.5.1	CONSOLIDAT DEFICIEN'S IN EARLY REQUIREMT	<p>This process consolidates all early fielding deficiencies results of the previous 402 series subtasks. Some examples of deficiencies could be as follows:</p> <ol style="list-style-type: none"> <li>1. Major downtime contributors.</li> <li>2. Unacceptable repair turn-around time.</li> <li>3. Skill/aptitude constraints.</li> <li>4. Etc..</li> </ol> <p>Source of Data:</p> <ol style="list-style-type: none"> <li>1. Project Manager/Integrated Logistics Support Management Team.</li> <li>2. Subtask 402.2.1 - New System Impacts</li> <li>3. Subtask 402.2.2 - Sources of Manpower and Personnel Skills.</li> <li>4. Subtask 402.2.3 - Impact of Resource Shortfalls.</li> <li>5. Subtask 402.2.4 - Combat Resource Requirements.</li> </ol>
402.2.5.1A1	LIST DEF INTO CATEGORIES	<p>Select and list each deficiency received into a category as defined within Subtask 402.2.1 through 402.2.4.</p> <p>Source of Data:</p> <ol style="list-style-type: none"> <li>1. Subtask 402.2.1 - New System Impacts.</li> <li>2. Subtask 402.2.2 - Sources of Manpower and Personnel Skills.</li> <li>3. Subtask 402.2.3 - Impact of Resource Shortfalls.</li> <li>4. Subtask 402.2.4 - Combat Resource Requirements.</li> </ol>
402.2.5.1A2	CHARACTER- IZE AND ANALYZE DEFICIENCIES	<p>Assess and establish that the "subject" deficiency is in reality a valid problem/deficiency that warrants corrective action.</p> <p>Forward results to Ad Hoc Action Team for prestaffing, guidance, and coordination.</p> <p>Incorporate Action Team guidance into problem deficiency identities.</p> <ol style="list-style-type: none"> <li>1. Ad Hoc Action Team</li> <li>2. Subtask 402.2.5.1A1 - List Deficiencies Into Categories.</li> </ol>
402.2.5.1A3	DETERMINE PRIORITY OF DEFICNC FOR ACTION	<p>Identify priorities and problem resolution dates for each deficiency.</p> <p>Priority actions against each deficiency falls into a category of two types of priorities:</p> <ol style="list-style-type: none"> <li>1. Red Condition - Relates to a problem/deficiency that is classified as a "show stopper", one that has no immediate solution, with a definite slippage and impact on established milestones and future events.</li> <li>2. Amber Condition - Relates to a problem/ deficiency that has a known solution and/or work around available to solve the deficiency without an adverse impact on any established milestones and future events.</li> </ol> <p>Source of Data:</p> <ol style="list-style-type: none"> <li>a. 4.2.2.5.1A2 - Characterize and analyze Deficiencies.</li> <li>b. Ad Hoc Action Team guidance on Deficiency Priorities.</li> </ol>

Name	Label	Description
402.2.5.2	DEVELOP CORRECTIVE ACTION PLANS	Identify those actions which are essential and have the most positive effect on solving the problem, such as cost, scheduling, etc.. Source of Data: 1. Subtask 402.2.5.1 - Consolidate Deficiencies in Early Fielding Requirements. 2. Ad Hoc Action Team
402.2.5.2A1	ANALYZE & EVALUATE DEFICIENCY	Determine those problems affecting the new system/equipment that will influence the system readiness objectives (SRO). Forward problem description and substantiating data to Ad Hoc Action Team for coordination. Incorporate Ad Hoc Action Team Guidance in problem definition. Source of Data: 1. Subtask 402.2.5.1a3 - Determine Priority of Deficiencies for Action 2. Ad Hoc Action Team.
402.2.5.2A2	DOCUMENT EVALUATION DATA	This process isolates and documents the evaluation of the results of the analysis to provide a "Draft Action Plan" that simplifies functions and tasks requiring logistic support resources for the new system/equipment by selecting the most appropriate alternatives to establish the level of effort necessary to solve the deficiency. Source of Data: 1. Subtask 402.2.5.2A1 - Analyze and Determine Impact of Deficiency. 2. Ad Hoc Action Team.
402.2.5.2A3	INITIATE ACTION PLAN	This process prints and distributes the "Draft Action Plan" recorded on the "Corrective Action Plan Worksheet" to Functional Area Representatives. Source of Data: 1. Subtask 402.2.5.2A2 - Documented Evaluation Plan. 2. Ad Hoc Action Team
402.2.5.3	IMPLEMENT- ATION OF PLANS	This process implements the various plans of actions that will correct the problem and/or deficiency identified as a logistic support resource problem. Source of Data: 1. Subtask 402.2.5.2 - Develop Corrective Action Plans 2. Program Manager
402.2.5.3A1	COORDINATN OF ACTION PLAN	The detailed "Corrective Action Plan Worksheet" (Draft Action Plan) is prestaffed with the Ad Hoc Action Team and the PM/ILSMT. The tentative Action Plan is then coordinated with all other active players, ie., contractor personnel and government agency personnel. Source of Data: 1. Subtask 402.2.5.2A3 - Initiate Action Plan. 2. Ad Hoc Action Team

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PROCESSES

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Name	Label	Description
402.2.5.3A2	UPDATES TO APPLICABLE 402 SERIES SUBTASKS	The process in which each separate problem/deficiency in Subtasks 402.2.1 through 402.2.4 are updated with necessary corrective actions required for correction of a specific problem/deficiency. Source of Data: Subtask 402.2.5.3A1 - Coordination of Action Plan
402.2.5.3A3	APPROVED ACTION PLAN DISTRIBUTN	The receipt of the "Approved Action Plan" by the Project Managers Office (PMO) at the PM's discretion, final distribution is made to all applicable players involved, ie., Contractors and government agencies. In addition, the PMO will maintain complete files of such plans and actions. This will facilitate the official authorization to start work. Source of Data: 1. Subtask 402.2.5.3A1 - Coordination of Action Plan. 2. Program Manager.

Name	Label	Description
ASS/DEF	ASSESSMENT OF DEFICIENCY	<p>Purpose: Data contains assessment of potential problem areas in which either the Maintenance Support Concept or the Logistic Support Concept is subject to further study and/or revisions. This data will be used to evaluate how well the proposed Maintenance/Logistic Support Concept has performed as well as whether anticipated resources have been adequately identified.</p> <p>Source of Data: Subtask 402.2.5.2A1 - Analyze and Determine Impact of Deficiency.</p>
BAS/WAR/DEF	BASIS OF WAR DEFICIENCIES	<p>Purpose: To provide data on the necessary resources required to determine combat essential logistic support resource requirements shortfalls; Such as:</p> <ol style="list-style-type: none"> <li>1. Non-capability of logistics interface within allied nations (Interoperability, Standardization, etc..).</li> <li>2. Design immaturity and/or instability.</li> <li>3. Excessive component repair turnaround time.</li> <li>4. Insufficient supporting facilities basing the system.</li> <li>5. Lack of transportation and/or transportability.</li> <li>6. Standard measurement vs. metric.</li> <li>7. Combat ASL/PLL not adequate.</li> <li>8. High risk level pertaining to: <ol style="list-style-type: none"> <li>a. System performance.</li> <li>b. System supportability.</li> </ol> </li> <li>9. Incompatible communication systems.</li> </ol>
COOR/SRO PROBLEMS	GUIDANCE/ COORDINATION OF PROBLEMS AFFECT'G SRO	<p>PURPOSE: To forward to the ILS analyst the advice and guidance from the Ad Hoc Action Team related to the potential problems in the areas of Manpower and Personnel Skills, Resource Shortfalls, and Combat Resource Requirements</p> <p>Source of Information: Subtasks 402.2.1, 402.2.2, 402.2.3, and 402.2.4.</p>
COORD/ALT/ACT/PLNS	COORDINATION /ALTERNATIVE ACTION PLANS	<p>Purpose: To forward results of ADHOC Action Team assessment of the alternative action plans back to the ILS action officers so that the proposed plans of action are precoordinated prior to selection of the final action plan and its subsequent implementation.</p>
COR/ACT/PLN/WORK	CORRECTIVE ACTION PLAN WORKSHEET	<p>PURPOSE: To submit the proposed corrective action plan worksheet to the ADHOC committee for prestaffing of the draft Action Plan. This draft Action Plan has been precoordinated with all active participants such as the contractor personnel and related governmental agency personnel.</p>
DEFcy/PRI/GUIDANCE	DEFICIENCY PRIORITY AND GUIDANCE - AD HOC COMMIT	<p>Ad Hoc Action Team guidance and prestaffing of the prioritization of deficiencies and problems associated with early fielding of the developmental system and/or equipment.</p>

Name	Label	Description
DOC/REC	DOCUMENTED RECOMMENDED ACTIONS	Purpose: This data provides a prioritized listing of early fielding deficiencies with recommendations to implement a corrective plan of action, hopefully without the possibility of an adverse impact on readiness. Source of Data: Subtask 402.2.5.1 - Consolidate Deficiencies in Early Requirements
DOC/RES/COORD	DOCUMENTED RESULTS OF COORDINATION	Purpose: A document, ie. minutes to a meeting, outlining the agreements and signatures of concurrence of all participants representing the Contractor and Government Agencies. Source of Data: Subtask 402.2.5.3A1 - Coordination of Action Plan.
DOC/RES/DEF	DOCUMENTED RESULTS OF DEFICIENCY	Purpose: This package of documents contains all applicable documents from the identification of a deficiency all the way through the process of implementation of corrective action. This package of documents is provided to the Project Manager responsible for the new system/ equipment. The Project Manager will then determine exactly that additional distribution must be made to Contractor/ Government personnel/activities. Source of Data: Subtask 402.2.5.3A3 - Final Report Distribution.
DRFT/ACT/PLAN	DRAFT ACTION PLAN - POTENTIAL CORRECTIVE ACTIONS	Purpose: To submit the results of the evaluation of actions which are essential and have the most positive effect on solving the problems, such as cost, scheduling, etc. Source of information: Output from Task 402.2.5.2A2
EXIS/M&P/RES/DEF	EXISTING M&P RESOURCE DEFICIENCIES	Purpose: To provide manpower and personnel deficiency data that could seriously impact the new system/equipment. Examples of M & P deficiencies are: 1. Insufficient data supporting the total number of personnel required/ available. 2. Lack of maintenance task identification, ie., Baseline vs. Projections. 3. Shortage of people and/or equip- ment. 4. Shortage of skills. 5. Training requirements not fully identified. Source of Data: Subtask 402.2.2.- Source of Manpower and Personnel Skills.

Name	Label	Description
EXTRACT/DAT	EXTRACTED DEFICIENCY ILS DATA	<p>Purpose: This data contains verification that a deficiency has occurred and corrective action must be implemented. This data may contain deficiencies in:</p> <ol style="list-style-type: none"> <li>1. Operating/support costs.</li> <li>2. Logistical support shortfalls.</li> <li>3. System Readiness Objectives.</li> <li>4. Mission profile.</li> <li>5. Geographical constraints</li> <li>6. State-of-the-art technology.</li> <li>7. Standards for storage.</li> <li>8. Etc..</li> </ol> <p>Source of Data: Subtask 402.2.5.1A2 - Characterize and Analyze Deficiencies.</p>
GUID/COORD/PROBLEMS/	GUIDANCE AND COORDINATION OF PROBLEMS /DEFICIENCIES	<p>Purpose: Prestaffing coordination/guidance relative to the identification of valid problems and deficiencies relative to early fielding of the developmental system/equipment.</p>
IDENT/402/CATEG	IDENTIFIABLE 402 SUBTASK CATEGORY	<p>Purpose: Data contains specific information and deficiencies against any one of the 402 Series Subtasks 402.2.1 through 402.2.4. For example:</p> <ol style="list-style-type: none"> <li>1. Subtask 402.2.1 contains deficiencies pertaining to new system impact.</li> <li>2. Subtask 402.2.2 contains deficiencies pertaining to Sources of M &amp; P Skills.</li> <li>3. Subtask 402.2.3 contains deficiencies pertaining to Impact of Resource Shortfalls.</li> <li>4. Subtask 402.2.4 contains deficiencies pertaining to Combat Resource Requirements.</li> </ol> <p>Source of Data: Subtasks 402.2.1, 402.2.2, 402.2.3 and 402.2.4.</p>
INIT/ACT	INITIATE ACTION	<p>PURPOSE: THE REQUIRED ACTIONS OF THOSE (IF MORE THAN ONE) ACTIVITIES NECESSARY TO ACTUATE AN ILS ELEMENT ASSESSMENT FOR A SYSTEM AND/OR EQUIPMENT WHICH PROVIDES THE FORMAL AUTHORIZATION FOR THE PERFORMANCE OF AN ILS EFFORT. THESE INITIATING ACTIONS ARE NORMALLY PERFORMED BY THE ILSMT AND/OR THE PROGRAM MANAGER.</p> <p>WILL INCLUDE DATA IDENTIFYING THE NEED FOR ASSESSING AN ALTERNATIVE SYSTEM/EQUIPMENT OR FOR IMPLEMENTATION OF A SPECIFIC ILS/LSA TASK, AS APPLICABLE. THIS NEED MAY BE BASED ON AN EVALUATION OF THE EXISTING REQUIREMENTS ON THE BASELINE SYSTEM/EQUIPMENT OR ON THE ILS/LSA TASKS NEEDED TO FULLY DOCUMENT AND/OR EVALUATE THE IMPACT OF ILS ON THE NEW OR EXISTING SYSTEM/EQUIPMENT OVER ITS LIFE CYCLE.</p> <p>THESE DATA MAY:</p> <ol style="list-style-type: none"> <li>1. IDENTIFY THE SPECIFIC ILS/LSA TASK TO BE IMPLEMENTED</li> <li>2. ESTABLISH MISSION PROFILE</li> <li>3. IDENTIFY THE RESOURCES THAT EXIST AND/OR MUST BE DEVELOPED</li> <li>4. ESTABLISH PRIORITIES.</li> </ol> <p>SOURCE OF DATA: PROGRAM MANAGER OR ILSMT</p>

Name	Label	Description
NEW/CAP/DEF	NEW CAPABILITY DEFICIENCIES	<p>Purpose: To identify shortfalls/problem areas within the logistic support posture that directly impacts Support Cost and readiness requirements for weapon systems, supply and support systems. Examples of logistical deficiencies are:</p> <ol style="list-style-type: none"> <li>1. Supply support system not fully quantified.</li> <li>2. Training programs and requirements not fully quantified.</li> <li>3. Manpower and personnel support levels for operational systems not fully identified.</li> <li>4. Stockage lists (ASL/PLL) for system/ equipment not fully documented.</li> <li>5. Etc..</li> </ol> <p>Source of Data: Subtask 402.2.1 - New System Impacts.</p>
PLN/ACT	PLAN OF ACTION	<p>Purpose: This data outlines the Plan of Action required to correct a deficiency either identified as a "Red" or "Amber" Condition. The plan contains information relative to:</p> <ol style="list-style-type: none"> <li>1. Identification of the problem.</li> <li>2. Responses to the following questions: <ol style="list-style-type: none"> <li>a. Is a corrective action obtainable?</li> <li>b. What is the impact of this deficiency?</li> <li>c. What is the time frame for implementation of corrective action?</li> <li>d. What is the impact on following schedules and/or milestones?</li> </ol> </li> <li>3. Assignment of action responsibility with completion dates.</li> <li>4. Implementation instructions for the Action Plan.</li> <li>5. Follow-ups.</li> </ol> <p>Source of Data: Subtask 402.2.5.2A3 - Initiate Action Plan</p>
PM/ILSMT/APPRV	PM/ILSMT APPROVAL OF PROPOSED ACTION PLAN	<p>Purpose: Based on information submitted by program analysts on the corrective Action Plan Worksheet, the PM/ILSMT must provide approval of the proposed Action Plan before any further actions are taken relative to the development of the final Action Plan and its subsequent distribution.</p>
PROBLEM/SRO	PROBLEMS AFFECTING SRO	<p>PURPOSE: To forward detailed information related to the problems which affect (has the potential of affecting) the system/equipment SRO.</p>
PROBS/DEFICIENCY	VALID PROBLEMS & DEFICIENCIES	<p>PURPOSE: To communicate with the AD HOC Committee relative to the assessment of valid problems and deficiencies of the integrated logistic system to meet the requirements for the early fielding of the developmental system/equipment. These deficiencies and problems may be associated with factors such as major down time contributors, unacceptable repair turn-around time, and/or skill/aptitude constraints.</p>



Name	Label	Description
QUANT/DATA	QUANTIFIED DATA	<p>Purpose: A final approval document addressing a known problem/deficiency with the corrective actions necessary to update the data in the various applicable 402 Series Subtasks.</p> <p>Source of Data: Subtask 402.2.5.3A2 - Updates to applicable 402 Series Subtasks.</p>
QUANT/DEF/DAT	QUANTIFIED DEFICIENCY DATA	<p>Purpose: A list of quantified/prioritized deficiencies that may impact the introduction of the new system/equipment on existing systems. Some examples are:</p> <ol style="list-style-type: none"> <li>1. The identification of risks involved with the supportability of the system/ equipment due to functional requirements.</li> <li>2. Identifies what the new system/ equipment must do in order to accomplish the intended mission or task.</li> <li>3. Shortage of certain specialty skill resources critical to the success of the support concepts.</li> <li>4. Etc..</li> </ol> <p>Source of Data: Subtask 402.2.5.2A2 - Document Evaluation Data.</p>
SEL/ACTION/PLAN	COORDINATION /PRESTAFFING OF SELECTED ACTION PLAN	<p>PURPOSE: Coordination of the selected Action Plan to prevent future problems related to all other aspects of the Integrated Logistics System which may be impacted by the developmental system/equipment. This coordination and prestaffing includes consideration of the proposed corrective actions required to resolve the specific problem/deficiency and all related activities.</p>
SYS/READ/DEF	SYSTEM READINESS DEFICIENCIES	<p>Purpose: This data identifies the system/equipment readiness parameters that may result in not obtaining the required logistics support resources needed to justify the established requirements of the new system. Examples of these types of deficiencies could be:</p> <ol style="list-style-type: none"> <li>1. System Design Deficiency. <ol style="list-style-type: none"> <li>a. Reliability</li> <li>b. Maintainability</li> </ol> </li> <li>2. Performance of the support system/equipment.</li> <li>3. Support resources shortfalls. <ol style="list-style-type: none"> <li>a. Quantity</li> <li>b. Location</li> </ol> </li> <li>4. Deficiencies in readiness measures. <ol style="list-style-type: none"> <li>a. Sorti rates</li> <li>b. Mission Capable Rate</li> <li>c. Operational Availability</li> <li>d. NORS and/or NORM</li> </ol> </li> </ol> <p>Source of Data: Subtask 402.2.3 - Impact of Resources Shortfalls.</p>

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DATA STORES

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Name	Label	Description
PM/DF	PROGRAM MANAGER DATA FILE	Contains those files and data which are normally developed by and/or retained by the Program Manager for proper management of the Development Program. These files include: <ol style="list-style-type: none"><li>1. Engineering Drawings</li><li>2. Engineering Characteristics</li><li>3. DT/OT Results</li><li>4. Concept Formulation Package (CFP)</li><li>5. Design Concept Paper (DCP)</li><li>6. Type Technical Reviews Required</li><li>7. Milestone Schedules</li><li>8. Funding Profiles</li><li>9. Required Operational Capabilities (ROC)</li><li>10. Item/Equipment Specifications</li><li>11. Item/Equipment Missions and Functions</li><li>12. Equipment, Manpower, and Technical risk assessments (From LSA Task 301.2.3)</li><li>13. Tradeoff Determination Analysis (TOD)</li><li>14. Tradeoff Analysis (TOA)</li><li>15. Best Technical Approach Analysis (BTA)</li><li>16. Cost and Operational-Effectiveness Analysis (COEA)</li></ol>

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EXTERNAL ENTITY

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Name	Label	Description
AD/ACT/TEAM	ADHOC ACTION TEAM	A group or committee consisting of Contractor/Government personnel, established to identify, trouble-shoot, resolve and implement actions required to correct deficiencies. This team may consist of an unlimited number of personnel, depending upon the magnitude and/or talents needed to solve the deficiency. Normally, this team would consist of personnel already assigned as a member of the existing Program Manager/Integrated Logistic Support Management Team (PM/ILSMT).
PM/ILSMT	PM/ILSMT	The Program Manager or those activities, agencies or authorities that are responsible for the initiation of the requirement for an ILS element assessment during a development program for a system and/or equipment in accordance with AR 700-127. The key action (output) required of this external entity is the directive, authority, or other documentation that initiates the requirement for the application of this ILS assessment to a specific system/equipment development program at a specified point in it's life cycle in accordance with AR 700-127.

**ANNEX C**

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**LSA SUBTASK 402.2.5  
EARLY FIELDING PLANS FOR PROBLEM RESOLUTION**

## ANNEX C

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### LSA SUBTASK 402.2.5 EARLY FIELDING PLANS FOR PROBLEM RESOLUTION

#### PROCESS 402.2.5.1 - Consolidate Deficiencies in Early Fielding Requirements

##### PURPOSE:

To consolidate all early fielding deficiencies shown by the results of the previous 402 series Subtasks 402.2.1 through 402.2.4.

#### PROCESS 402.2.5.1A1 - List Deficiencies into Categories

##### PURPOSE:

To select and list each deficiency identified within Subtasks 402.2.1 - 402.2.4 and categorize by ILS area.

##### PROCEDURES:

1. Review the results of LSA Subtasks 402.2.1 through 402.2.4. Select identified deficiencies or problem areas associated with the new system, existing system, or planned system resource requirements.
2. Categorize each item by ILS area and identify the system being impacted (i.e., new, existing, or planned).
3. Place a one-line description of the deficiency on the "Worksheet for Identification and Prioritization of Deficiencies".

##### REFERENCES:

- Subtask 402.2.1, New System Impact
- Subtask 402.2.2, Sources of Manpower & Personnel Skills
- Subtask 402.2.3, Impact of Resource Shortfalls
- Subtask 402.2.4, Combat Resource Requirements

# **WORKSHEET FOR IDENTIFICATION AND PRIORITIZATION OF DEFICIENCIES TO SYSTEMS (PROCESS 402.2.5.1)**

<b>End Item Name:</b> <b>Nomenclature:</b> <b>Part Number:</b>					
<b>Examples of Deficiency Areas</b> a. Weapon b. Supply c. Maintenance d. Transportation e. Depot Workload & Scheduling f. Provisioning g. Inventory Factors h. TMDE Availability & Capability i. Training Programs j. POL Requirements k. Manpower & Personnel l. Readiness m. Survivability n. Other	<b>Impacted System Name</b>	<table border="1"> <tr> <th align="center">Condition</th> </tr> <tr> <td align="center">Red</td> </tr> <tr> <td align="center">Amber</td> </tr> </table>	Condition	Red	Amber
Condition					
Red					
Amber					

**PROCESS 402.2.5.1A2 - Characterize and Analyze Deficiencies**

**PURPOSE:**

To assess and establish that the "subject" deficiency is a valid problem/deficiency that warrants corrective action.

**PROCEDURES:**

1. Review each deficiency by analyzing the bounds of the problem. Determine how the problem affects other ILS areas, system operations, support, and other systems.
2. Review the supporting data for the deficiency from the LSA Task (402.2.1 through 402.2.4) from which it was extracted. Review the results of other LSA Tasks, e.g., LSA Task 301, "Baseline Support Functional Requirements", that have information related to the particular deficiency. Analyze this data and determine if the deficiency is valid (e.g., that the support function was not fully developed as called out in LSA Task 301).
3. Identify ILS Functional Area Representatives (Maintenance, Engineering, Reliability Engineering, Provisioning, Technical Publications) who can be called upon to help resolve the problem.
4. For each deficiency identified in Process 402.2.5.1A1, document the bounds of the problem with the associated affected area on the "Problem Identification Worksheet". List the Functional Area Representatives to call upon to develop plans for problem resolutions. Include any representatives from other commands or project management offices supporting existing or planned systems.
5. Forward the results of the review to the Ad Hoc Action Team for prestaffing, guidance and coordination.
6. Incorporate Ad Hoc Action Team Guidance into problem/deficiency identification.

**REFERENCE:**

- Process 402.2.5.1A1, List Deficiencies into Categories.

**PROBLEM IDENTIFICATION WORKSHEET**  
**(PROCESS 402.2.5.1A2)**

<b>Nomenclature:</b> <b>End Item:</b> <b>Part Number:</b>			
<b>Problem Name:</b>			
<b>Problem Description:</b>			
<b>Functional Area Representatives:</b>			
<b>Name</b>	<b>Organization</b>	<b>Phone No.</b>	<b>Functional Area</b>
<b>Systems Impact:</b>  <b>System 1:</b>  <b>System 2:</b>  <b>System 3:</b>  <b>System 4:</b>  <b>System 5:</b>			



**PROCESS 402.2.5.1A3 - Determine Priority of Deficiencies for Action**

**PURPOSE:**

To identify priorities and problem resolution dates for each deficiency (i.e., a "Red" condition or an "Amber" condition.)

**PROCEDURES:**

1. From the problem definition and the scope of the affect on other systems and ILS functional areas, determine the overall impact on the program.
2. Rate those problems which have a significant impact on the program (e.g., cause a schedule slip, make the system unsupportable, or stop the system from being tested) as "Red".
3. Those problems that have a workaround or can be resolved during a later phase of the program should be rated as "Amber".
4. Consider the resources (manpower and costs) required to resolve the problem. Prioritize the problems from highest to lowest by selecting those with the greatest potential for improving system Readiness or Supportability for the resources expended.
5. Determine and document an acceptable problem resolution completion date.

**REFERENCES:**

- Process 402.2.5.1A1, List Deficiencies into Categories
- Process 402.2.5.1A2, Characterize and Analyze Deficiencies

**PROCESS 402.2.5.2 - Develop Corrective Action Plans**

**PURPOSE:**

To identify those actions which are essential and have the most positive affect on solving the problem

**PROCESS 402.2.5.2A1 - Analyze and Evaluate Deficiencies**

**PURPOSE:**

To determine those problems affecting the new system/equipment that will influence the System Readiness Objectives (SRO).

<b>End Item Name:</b> <b>Nomenclature:</b> <b>Part Number</b>			
<b>Problem Name</b>	<b>Rating</b>	<b>Priority</b>	<b>Date Resolution Required</b>

#### PROCEDURES:

1. From Process 402.2.5.1A3, select the problems having the highest priority.
2. Call together the ILS Functional Area representatives identified in Process 402.2.5.1A2 to formulate conceptual solutions to the problem.
3. Examine each ILS Functional Area and identify logistic resources or changes to support the concepts formulated to resolve the problem.
4. Determine how the new logistic resource requirements impact system readiness, support cost, and other support factors (e.g., training, provisioning, technical publications, etc.). Check the availability of these resources and any program constraints.
5. Determine how recommended changes to support concepts affect system readiness objectives, and ILS functional areas. Mathematical models and trade-off analyses may be required to evaluate impacts.
6. Establish the level of effort and resources required to implement the proposed solution of the deficiency.
7. Forward problem description and substantiating data to Ad Hoc Action Team for guidance and coordination.
8. Incorporate Ad Hoc Action Team Guidance in problem definitions.

#### REFERENCES:

- Process 402.2.5.1, Consolidate Deficiencies in Early Fielding Requirements
- Process 402.2.5.1A3, Determine Priority of Deficiencies for Action.
- AMCP 700-4,
  - Table 2-1, "LSA Task to Technique Cross Reference"
  - Table 2-2, "ILS Element to Technique Cross Reference"
  - Table 2-3, "Category to Technique Cross Reference"

## **PROCESS 402.2.5.2A2 - Document Evaluation Data**

### **PURPOSE:**

To isolate and document the necessary actions required to provide a draft action plan that simplifies functions and tasks requiring logistic support resources for the new system/equipment.

### **PROCEDURES:**

1. On the "Corrective Action Plan Worksheet" document:
  - a. The problem and its rating.
  - b. The impact of the problem on the support concept of the new system and/or existing systems from the results of Process 402.2.5.1A2. Provide rationale as to why the problem was considered Red or Amber.
  - c. The corrective action for the problems from the results of Process 402.2.5.2A1. Include the changes to the System Support Concept and Logistic Resources Requirements.
  - d. The level of effort and resources required to implement the action plan.
  - e. Any follow-up actions (and their dates) that are required as a result of implementing the solution.
2. Under the field "Concur", obtain the signatures of the Work Group members supporting the problem resolution in the majority. Under the field "Non-Concur", obtain the signatures of Work Group members in the minority supporting alternative solutions.
3. Enter the rationale of the alternative solutions (those that did not "Concur").
4. Enter the minority recommendations. (Minority recommendations are required only when there is total disagreement between members of the Action Team.)

### **REFERENCES:**

- Process 402.2.5.1A1, List Deficiencies in Categories
- Process 402.2.5.1A2, Characterize & Analyze Deficiencies
- Process 402.2.5.1A3, Determine Priority of Deficiencies for Action Plan

### **PROCESS 402.2.5.2A3 - Initiate Action Plan**

#### **PURPOSE:**

To provide a draft Action Plan to Functional Area representatives.

#### **PROCEDURES:**

1. Print out the "Corrective Action Plan Worksheet" developed in 402.2.5.2A3.
2. Send a draft copy to all Functional Area Work Group Members who participated in the formulation of the corrective action.
3. Indicate to the Functional Area representatives that, upon approval by the Program Manager, work can commence on implementing the required actions.

### **PROCESS 402.2.5.3 - Implementation of Plans**

#### **PURPOSE:**

This process implements the various plans of actions that will correct the problem and/or deficiency identified as a logistic support resource problem.

### **PROCESS 402.2.5.3A1 - Coordination of Action Plan**

#### **PURPOSE:**

This detailed "Corrective Action Plan Worksheet" is prestaffed with the Ad Hoc Action Team and the PM/ILSMT. The Action Plan is then coordinated with all other active players, i.e., contractor personnel and Government Agency personnel.

#### **PROCEDURES:**

1. Try to resolve non-concurrence recommendations with the Functional Area Representative prior to forwarding plan to Program Management Office.
2. Provide Action Plan to PM for review and approval. Make sure to get concurrence on resource requirements and extent of corrective actions.
3. Resolve problems surfaced by the PM with Functional Area Representatives. Recommended actions may have to be adjusted due to program constraints or resource shortfalls.

**CORRECTIVE ACTION PLAN WORKSHEET**  
**(PROCESS 402.2.5.2A3)**

**End Item Name:**  
**Nomenclature:**  
**Part Number:**

**Identify New System/Equipment:**

**Identification of the Problem:**

**Discussion and Evaluation:**

**Corrective Action Required:**

**Estimated Completion Dates:**

**Follow-up Actions Required:**

Concur

Non-Concur

**Minority Discussion**

**Minority Recommendations**

4. Coordinate resource requirements with ILS Functional Areas that are not funded by the PM.

5. Obtain the signature from the appropriate Program Management/Functional Area personnel to approve start of work.

**NOTE:** In some cases, higher authority decision making processes must be pursued to obtain the necessary coordination. For example, due to the magnitude of the problem and its impact, the assigned member of the Ad Hoc Action Team might have to obtain the coordination from his home office, either by telephone, data fax, etc.

**PROCESS 402.2.5.3A2 - Updates to Applicable 402 Series Subtasks**

**PURPOSE:**

To update each separate problem/deficiency in Subtasks 402.2.1 through 402.2.4 with the corrective actions developed against each specific problem/deficiency.

**PROCEDURE:**

Forward problem deficiency resolutions developed in this Subtask to the 402 series subtask for update.

**PROCESS 402.2.5.3A3 - Approved Action Plan Distribution**

**PURPOSE:**

To provide the "Approved Action Plan" to the Program Manager's Office (PMO) and Functional Areas to facilitate official authorization to start work.

**PROCEDURES:**

1. Revise any parts of the action plan which resulted from resolution of non-concurrence from Functional Area Representatives or program constraints/resource shortfalls.

2. Obtain any additional concurrences required.

3. Print out the "Approved Action Plan" with supporting documentation.

4. Prepare a cover letter to all required personnel, authorizing work to begin on problem resolution. Ensure that the proper suspense dates appear in the letter. Enclose the "Approved Action Plan" listing the details of what steps are required to resolve each problem.

**APPROVED ACTION PLAN  
(PROCESS 402.2.5.3A3)**

**End Item Name:**

**Nomenclature:**

**Part Number:**

**Identify New System/Equipment:**

**Deficiency Rating:**

**Action Plan:**

**Concurrence:**



## **ANNEX D**

—

### **LSA SUBTASK 402.2.5 VERT BATCH INPUT FILES**

# VERT APPLICATION METHODOLOGY

## BACKGROUND:

Venture Evaluation and Review Technique (VERT) was developed as a network analysis technique to facilitate management decision making. It allows a systematic planning and control of programs and enables managers to find solutions to real life managerial problems.

The terms of the APJ contract require the provision of batch files for each of the VERT networks associated with the various Data Flow Diagrams in the APJ 966 projects.

APJ has been successful in adopting a method for the creation of these networks using the existing EXCELERATOR software package and establishing a naming convention compatible with that used in the Data Flow Diagrams. To do this APJ has made use of the PC model of VERT. A Structured Analysis project was used for this purpose. The prototype VERT network structure was made for one top level and one lower level data flow diagram.

The PC model of VERT has certain limitations built into it. To overcome some of these limitations, certain conventions were used to create the input files. To maintain full generality a set of "dummy" default values were established. The model allows the user to alter the default values of time, cost, and performance to satisfy their specific requirements.

## METHODOLOGY:

The basic symbols used to structure the network are :

- (i) **SQUARES** - to indicate NODES. These are decision points in the project, or points beyond which the project cannot proceed unless certain criteria are met. There are two types of nodes, one which supports input operations and, the second type which supports output operations.
- (ii) **LINES** - to indicate ARCS which are activities that have time, cost, and performance criteria associated with them.

In practice, however, both the arcs and nodes are similar, in that both have time, cost, and performance criteria associated with them. The arcs have a primary and a cumulative set of time, cost, and performance criteria whereas the nodes have only a single cumulative set.

- (iii) **NAMING CONVENTIONS** - Efforts have been made to keep the naming convention as compatible as possible to the Data Flow Diagrams. The naming convention used is displayed below.

**NODES** - All nodes are prefixed with the letter N. The individual Nodes are identified by a number and a letter. The number refers to the number of the node within the diagram and the letter refers to the diagram number in the project. In the event that a node has been referenced in an earlier diagram they also carry the number of the node in the earlier diagram as a prefix to the individual node number.

#### **N2.4A**

- N** - All nodes are prefixed with the letter N
- 2** - Gives the number of the node it relates to in a higher level diagram or an earlier data flow diagram within the project. In this case it refers to node N2 of the top level diagram.
- 4** - Gives the number of the node in the present data flow diagram.
- A** - The nodes in each subsequent explosion are allotted an alphabetical suffix indicating the number of the explosion diagram in the particular project. In this case, it is the first lower level diagram within the project.

**ARCS** - All arcs are prefixed with either the letter C or E. The individual Arcs are identified by two numbers. The first number refers to the number of the arc within the diagram and the second number refers to the number of the diagram within the project. In the event that an arc has been referenced in an earlier diagram they also carry the number of the arc in the earlier diagram as a prefix to the individual arc number. The arcs which are identified by the letter E have direct reference to a process in the corresponding data flow diagram and as such are named the same as the process itself.

#### **C3.3.8.4**

#### **E12.1A2**

- C** - All arcs are prefixed with the letter C. In some cases, however, arcs carry a prefix of E. These particular arcs correspond to a process within the data flow diagram and are thus named the same as the process itself.

- 3.3 - Gives the number of the arc it relates to in a higher level diagram or an earlier data flow diagram within the project. In this case, it refers to arc number 3 in lower level diagram #3 within the project.
- 8.4 - Indicates that this particular arc is the #8 arc in the #4 lower level diagram of the project.

#### **BATCH FILES**

- INPUT FILES** - The input file names are given the extension \*.IN.
- OUTPUT FILES** - The simulation output files are given the extension \*.OU.
- PRINT FILES** - The print files have been given the extension \*.PR.

(This would allow subsequent updates of the input files to be numbered as IN1...,OU1...,PR1... etc.)

#### **DEFAULT SETTINGS:**

##### **Control Record:**

- (i) The output option selected is "0" which provides a detailed listing, and high level of summary information.
- (ii) The input record listing option selected is "0" which prints all input records.
- (iii) The composite terminal node output option selected is "16" which assumes family mode and intrafamily transfer of histogram data.
- (iv) The number of iterations used are "10" in the demonstration model to facilitate operation in the debug mode if required.
- (v) The composite node name and the network name are left as blanks.
- (vi) In the run identification the name of the corresponding Data Flow Diagram is used as identification for the network description.

#### Arc Records:

- (i) For each of the arcs the following records are provided:
  - (a) Master Arc Record
  - (b) Time Distribution Satellite
  - (c) Cost Distribution Satellite
  - (d) Performance Distribution Satellite
- (ii) The Distribution Satellite Records are created to provide a uniform statistical distribution.
- (iii) The default values used for the minimum and maximum in each criteria are:

TIME	10.0	20.0
COST	10.0	100.0
PERFORMANCE	10.0	50.0

#### Node Records:

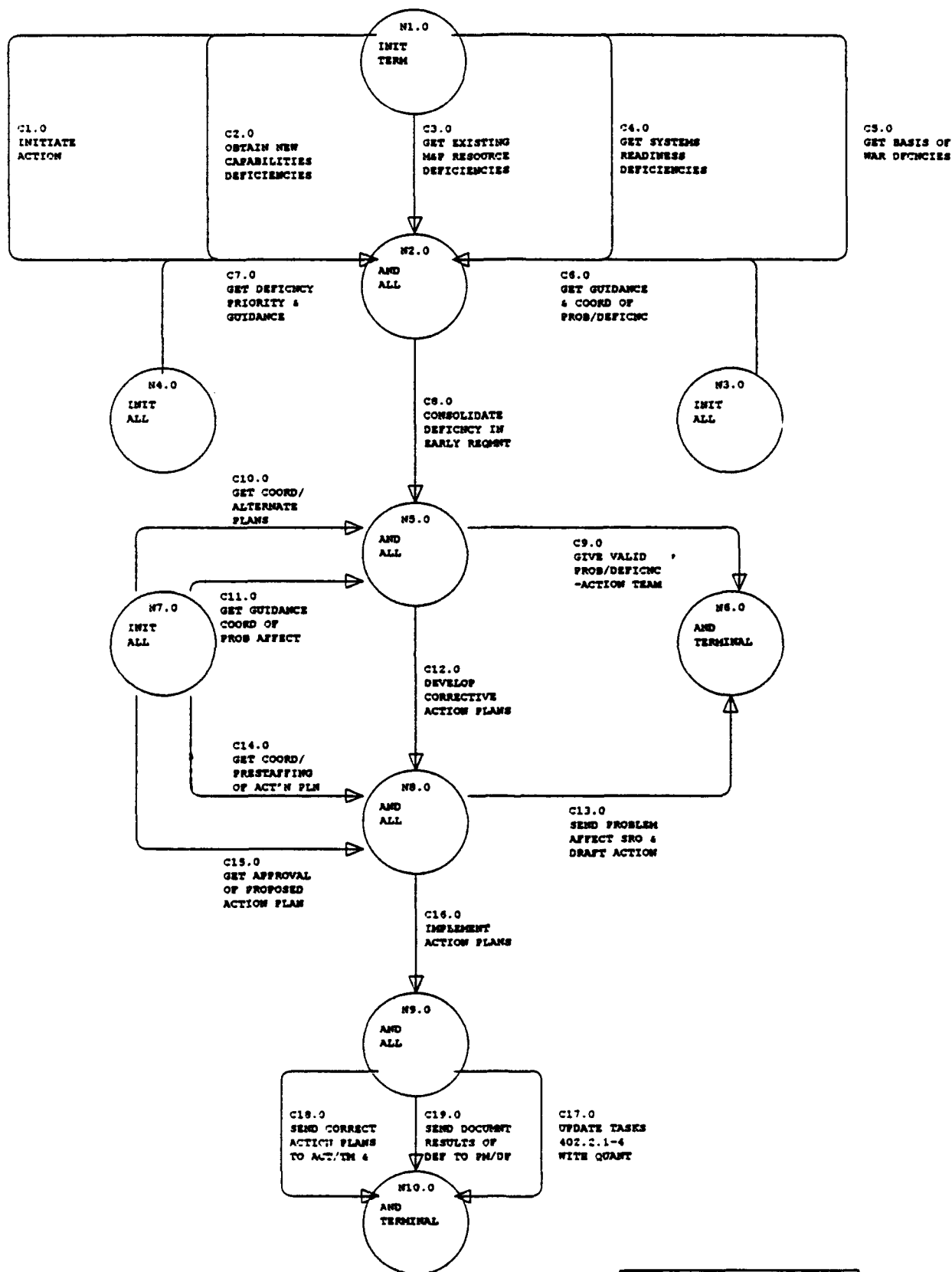
- (i) Input Logic - The input logic for the nodes are either "INITIAL" or "AND".
- (ii) Output Logic - The output logic has been defaulted to "AND" or "TERMINAL".
- (iii) The output option indicator and the storage option indicator are defaulted to read "0".
- (iv) The node description has also been left blank.

(It is again noted that the user can change the default values to desired values as identified by the particular requirement and applications.)

#### DOCUMENTATION:

With every project report APJ will be providing the following documents relating to the VERT:

- (i) A VERT network diagram corresponding to a particular data flow diagram.
- (ii) A print out of the VERT network inputs for the particular data flow diagrams.
- (iii) A floppy disc containing sample input, print, and the simulation output files for the default VERT network.



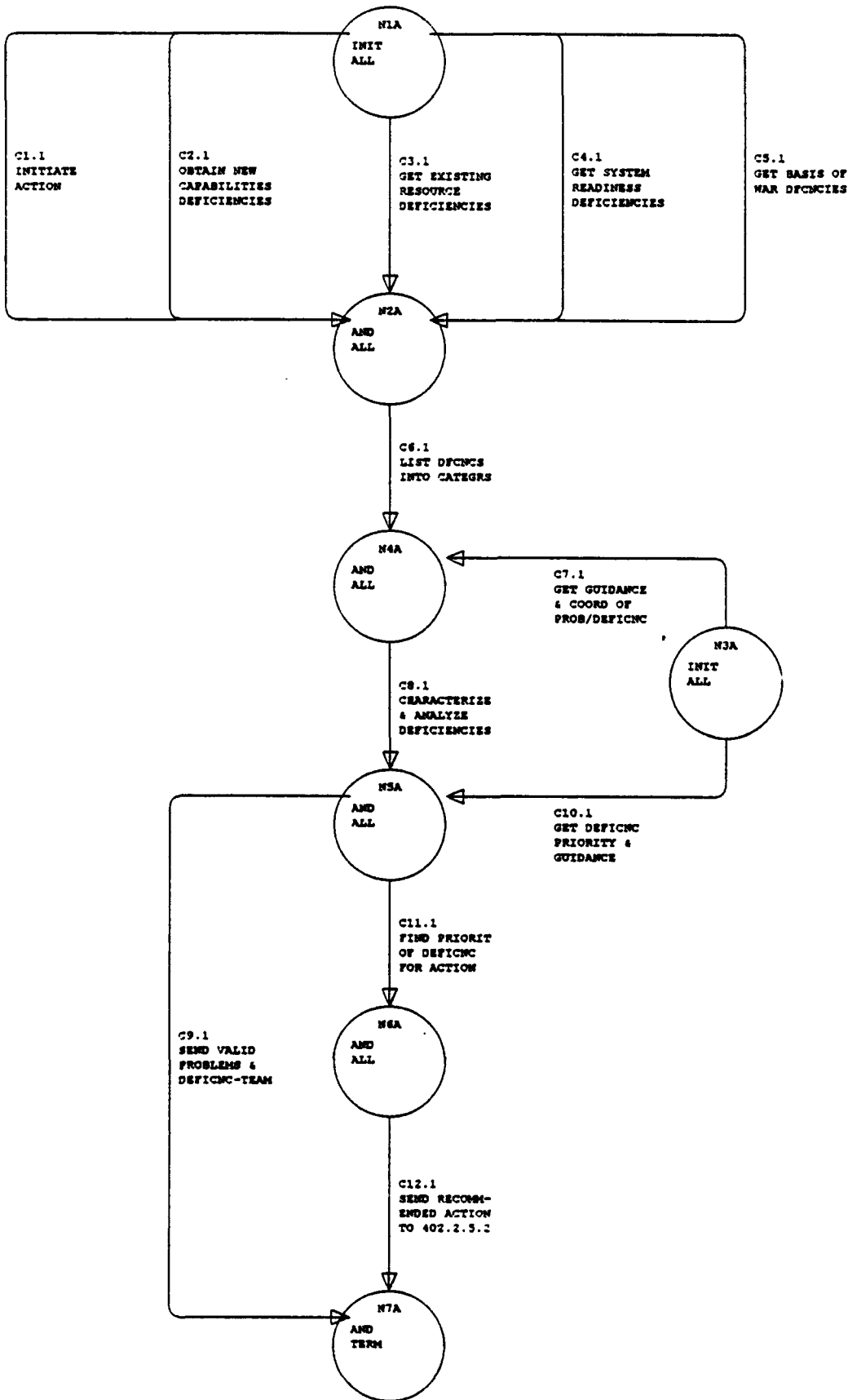
402.2.5 VERT PLNS FOR PROB RES  
Created by: JACK  
Revised by: sid  
Date changed: 18-MAY-90

1		NEW NETWORK		PAGE 1					
	1	2	3	4	5	6	7	8	
1234567890123456789012345678901234567890123456789012345678901234567890									
1.	0016	10	PLANS FOR PROBLEM RESOLUTION						
			+	+	+	+	+	+	+
2.	C1.0	N1.0 N2.0	1.0	INITIATE ACTION					
3.	C1.0	DTIME 1	2	10.0	20.0				
4.	C1.0	DCOST 1	2	10.0	100.0				
5.	C1.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
6.	C2.0	N1.0 N2.0	1.0	OBTAIN NEW CAPABILITIES DEFICIENCIES					
7.	C2.0	DTIME 1	2	10.0	20.0				
8.	C2.0	DCOST 1	2	10.0	100.0				
9.	C2.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
10.	C3.0	N1.0 N2.0	1.0	GET EXISTING M & P RESOURCE DEFICIENCIES					
11.	C3.0	DTIME 1	2	10.0	20.0				
12.	C3.0	DCOST 1	2	10.0	100.0				
13.	C3.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
14.	C4.0	N1.0 N2.0	1.0	GET SYSTEMS READINESS DEFICIENCIES					
15.	C4.0	DTIME 1	2	10.0	20.0				
16.	C4.0	DCOST 1	2	10.0	100.0				
17.	C4.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
18.	C5.0	N1.0 N2.0	1.0	GET BASIS OF WAR DEFICIENCIES					
19.	C5.0	DTIME 1	2	10.0	20.0				
20.	C5.0	DCOST 1	2	10.0	100.0				
21.	C5.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
22.	C6.0	N3.0 N2.0	1.0	GET GUIDANCE & COORDINATION OF PROB/DEFICIENCIES					
23.	C6.0	DTIME 1	2	10.0	20.0				
24.	C6.0	DCOST 1	2	10.0	100.0				
25.	C6.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
26.	C7.0	N4.0 N2.0	1.0	GET DEFICIENCY PRIORITY & GUIDANCE - ACTION TEAM					
27.	C7.0	DTIME 1	2	10.0	20.0				
28.	C7.0	DCOST 1	2	10.0	100.0				
29.	C7.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
30.	C8.0	N2.0 N5.0	1.0	CONSOLIDATE DEFICIENCIES IN EARLY REQUIREMENTS					
31.	C8.0	DTIME 1	2	10.0	20.0				
32.	C8.0	DCOST 1	2	10.0	100.0				
33.	C8.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
34.	C9.0	N5.0 N6.0	1.0	GIVE VALID PROB/DEFICIENCIES TO ACTION TEAM					
35.	C9.0	DTIME 1	2	10.0	20.0				
36.	C9.0	DCOST 1	2	10.0	100.0				
37.	C9.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
38.	C10.0	N7.0 N5.0	1.0	GET COORDINATION/ALTERNATIVE ACTION PLANS					
39.	C10.0	DTIME 1	2	10.0	20.0				
40.	C10.0	DCOST 1	2	10.0	100.0				
41.	C10.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+
42.	C11.0	N7.0 N5.0	1.0	GET GUIDANCE/COORDINATION OF PROB AFFECTING SRO					
43.	C11.0	DTIME 1	2	10.0	20.0				
44.	C11.0	DCOST 1	2	10.0	100.0				
45.	C11.0	DPERF 1	2	10.0	50.0				
			+	+	+	+	+	+	+

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1	NEW NETWORK		PAGE 2					
	1	2	3	4	5	6	7	8
1234567890123456789012345678901234567890123456789012345678901234567890								
46. C12.0	N5.0	N8.0	1.0 DEVELOP CORRECTIVE ACTION PLANS					
47. C12.0	DTIME 1		2	10.0	20.0			
48. C12.0	DCOST 1		2	10.0	100.0			
49. C12.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
50. C13.0	N8.0	N6.0	1.0 SEND PROB AFFECTING SRO & DRFT PLAN TO ACTION TEAM					
51. C13.0	DTIME 1		2	10.0	20.0			
52. C13.0	DCOST 1		2	10.0	100.0			
53. C13.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
54. C14.0	N7.0	N8.0	1.0 GET COORD/PRESTAFFING OF SELECTED ACTION PLAN					
55. C14.0	DTIME 1		2	10.0	20.0			
56. C14.0	DCOST 1		2	10.0	100.0			
57. C14.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
58. C15.0	N7.0	N8.0	1.0 GET PM/ILSMT APPROVAL OF PROPOSED ACTION PLAN					
59. C15.0	DTIME 1		2	10.0	20.0			
60. C15.0	DCOST 1		2	10.0	100.0			
61. C15.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
62. C16.0	N8.0	N9.0	1.0 IMPLEMENT ACTION PLANS					
63. C16.0	DTIME 1		2	10.0	20.0			
64. C16.0	DCOST 1		2	10.0	100.0			
65. C16.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
66. C17.0	N9.0	N10.0	1.0 UPDATE TASKS 402.2.1 - 4 WITH QUANTITATIVE RESULTS					
67. C17.0	DTIME 1		2	10.0	20.0			
68. C17.0	DCOST 1		2	10.0	100.0			
69. C17.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
70. C18.0	N9.0	N10.0	1.0 SEND CORRECTIV ACT PLN W/SHEET TO ACT/TEAM & PMILS					
71. C18.0	DTIME 1		2	10.0	20.0			
72. C18.0	DCOST 1		2	10.0	100.0			
73. C18.0	DPERF 1		2	10.0	20.0			
	+	+	+	+	+	+	+	+
74. C19.0	N9.0	N10.0	1.0 SEND DOCUMENTED RESULTS OF DEFICIENCIES TO PM/OF					
75. C19.0	DTIME 1		2	10.0	20.0			
76. C19.0	DCOST 1		2	10.0	100.0			
77. C19.0	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
78. ENDARC								
	+	+	+	+	+	+	+	+
79. N1.0	1 2 0 0							
	+	+	+	+	+	+	+	+
80. N2.0	2 2 0 0							
	+	+	+	+	+	+	+	+
81. N3.0	1 2 0 0							
	+	+	+	+	+	+	+	+
82. N4.0	1 2 0 0							
	+	+	+	+	+	+	+	+
83. N5.0	2 2 0 0							
	+	+	+	+	+	+	+	+
84. N6.0	2 1 0 0							
	+	+	+	+	+	+	+	+
85. N7.0	1 2 0 0							



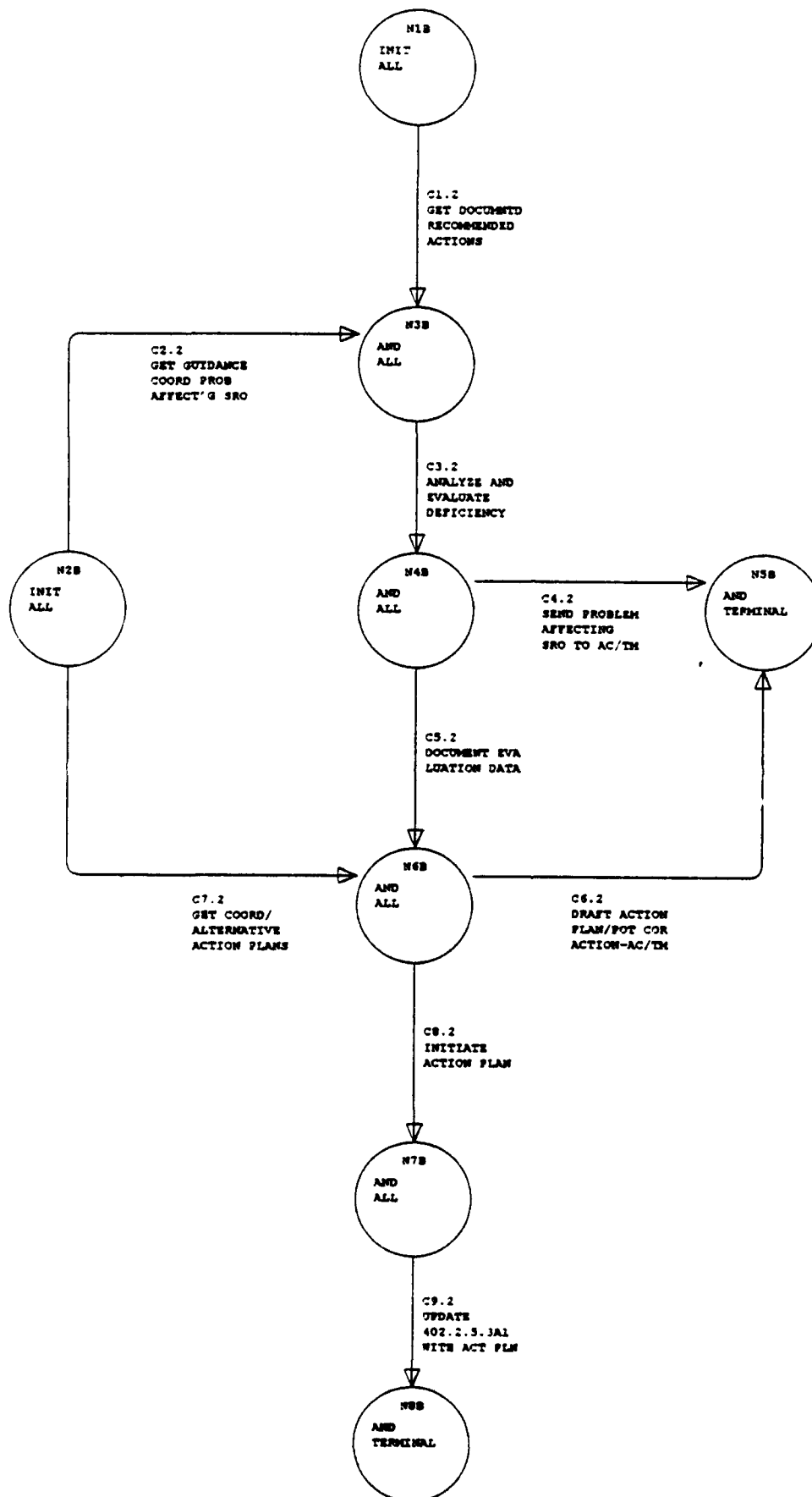
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1	NEW NETWORK			PAGE 3				
	1	2	3	4	5	6	7	8
	1234567890123456789012345678901234567890123456789012345678901234567890							
86. N8.0	2	2	0	0				
	+	+	+	+	+	+	+	+
87. N9.0	2	2	0	0				
	+	+	+	+	+	+	+	+
88. N10.0	2	1	0	0				
	+	+	+	+	+	+	+	+
89. ENDNODE								
	1	2	3	4	5	6	7	8
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402.2.5.1A VERT COMB DEFICIENCY  
Created by: JACK  
Revised by: sid  
Date changed: 18-MAY-90

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1. 0016 10								
	+	+	+	+	+	+	+	+
2. C1.1	N1A	N2A	1.0	INITIATE ACTION				
3. C1.1	DTIME 1		2	10.0	20.0			
4. C1.1	DCOST 1		2	10.0	100.0			
5. C1.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
6. C2.1	N1A	N2A	1.0	OBTAIN NEW CAPABILITIES DEFICIENCIES				
7. C2.1	DTIME 1		2	10.0	20.0			
8. C2.1	DCOST 1		2	10.0	100.0			
9. C2.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
10. C3.1	N1A	N2A	1.0	GET EXISTING RESOURCE DEFICIENCIES				
11. C3.1	DTIME 1		2	10.0	20.0			
12. C3.1	DCOST 1		2	10.0	100.0			
13. C3.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
14. C4.1	N1A	N2A	1.0	GET SYSTEM READINESS DEFICIENCIES				
15. C4.1	DTIME 1		2	10.0	20.0			
16. C4.1	DCOST 1		2	10.0	100.0			
17. C4.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
18. C5.1	N1A	N2A	1.0	GET BASIS OF WAR DEFICIENCIES				
19. C5.1	DTIME 1		2	10.0	20.0			
20. C5.1	DCOST 1		2	10.0	100.0			
21. C5.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
22. C6.1	N2A	N4A	1.0	LIST DEFICIENCIES INTO CATEGORIES				
23. C6.1	DTIME 1		2	10.0	20.0			
24. C6.1	DCOST 1		2	10.0	100.0			
25. C6.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
26. C7.1	N3A	N4A	1.0	GET GUIDANCE & COORDINATION OF PROB/DEFICIENCIES				
27. C7.1	DTIME 1		2	10.0	20.0			
28. C7.1	DCOST 1		2	10.0	100.0			
29. C7.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
30. C8.1	N4A	N5A	1.0	CHARACTERIZE & ANALYZE DEFICIENCIES				
31. C8.1	DTIME 1		2	10.0	20.0			
32. C8.1	DCOST 1		2	10.0	100.0			
33. C8.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
34. C9.1	N5A	N7A	1.0	SEND VALID PROBLEMS & DEFICIENCY TO ACTION TEAM				
35. C9.1	DTIME 1		2	10.0	20.0			
36. C9.1	DCOST 1		2	10.0	100.0			
37. C9.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
38. C10.1	N3A	N5A	1.0	GET DEFICIENCY PRIORITY AND GUIDANCE				
39. C10.1	DTIME 1		2	10.0	20.0			
40. C10.1	DCOST 1		2	10.0	100.0			
41. C10.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+
42. C11.1	N5A	N6A	1.0	FIND PRIORITY OF DEFICIENCY FOR ACTION				
43. C11.1	DTIME 1		2	10.0	20.0			
44. C11.1	DCOST 1		2	10.0	100.0			
45. C11.1	DPERF 1		2	10.0	50.0			
	+	+	+	+	+	+	+	+

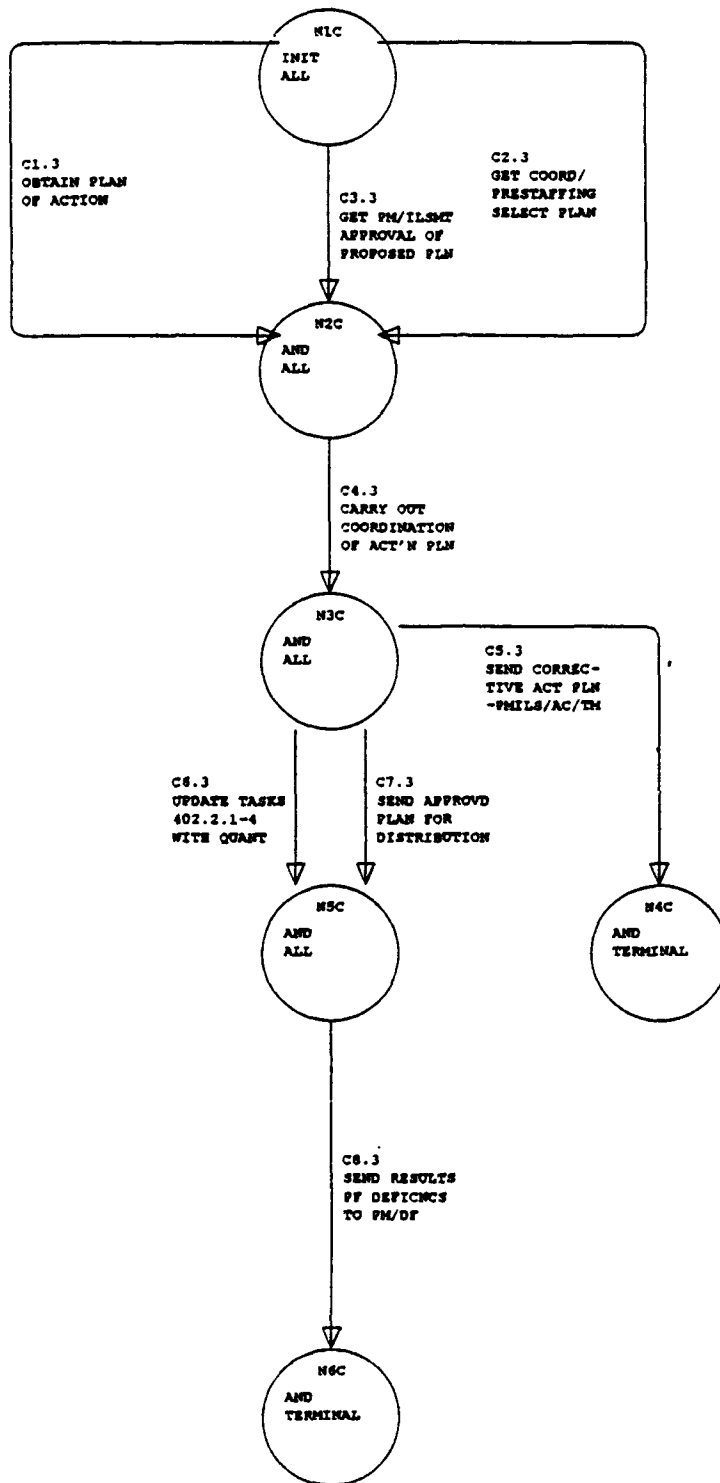
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1	NEW NETWORK				PAGE 2			
	1	2	3	4	5	6	7	8
	1234567890123456789012345678901234567890123456789012345678901234567890							
46. C12.1	N6A	N7A	1.0 SEND RECOMMENDED ACTION TO					402.2.5.2
47. C12.1	DTIME 1	2	10.0	20.0				
48. C12.1	DCOST 1	2	10.0	100.0				
49. C12.1	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
50. ENDARC								
	+	+	+	+	+	+	+	+
51. N1A	1 2 0 0							
	+	+	+	+	+	+	+	+
52. N2A	2 2 0 0							
	+	+	+	+	+	+	+	+
53. N4A	2 2 0 0							
	+	+	+	+	+	+	+	+
54. N3A	1 2 0 0							
	+	+	+	+	+	+	+	+
55. N5A	2 2 0 0							
	+	+	+	+	+	+	+	+
56. N6A	2 2 0 0							
	+	+	+	+	+	+	+	+
57. N7A	2 1 0 0							
	+	+	+	+	+	+	+	+
58. ENDNODE								
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402.2.5.2A VERT CORR ACTION PLNS  
Created by: JACK  
Revised by: sid  
Date changed: 18-MAY-90

NEW NETWORK		PAGE 1									
	1	2	3	4	5	6	7	8			
123456789012345678901234567890123456789012345678901234567890											
1. 0016	10	CORRECTIVE ACTION PLANS									
2. C1.2	N1B	N3B	1.0	GET DOCUMENTED	RECOMMENDED	ACTIONS					
3. C1.2	DTIME	1	2	10.0	20.0						
4. C1.2	DCOST	1	2	10.0	100.0						
5. C1.2	DPERF	1	2	10.0	50.0						
6. C2.2	N2B	N3B	1.0	GET GUIDANCE	COORDINATION	PROBLEMS	AFFECTING	SRO			
7. C2.2	DTIME	1	2	10.0	20.0						
8. C2.2	DCOST	1	2	10.0	100.0						
9. C2.2	DPERF	1	2	10.0	50.0						
10. C3.2	N3B	N4B	1.0	ANALYZE	AND	EVALUATE	DEFICIENCY				
11. C3.2	DTIME	1	2	10.0	20.0						
12. C3.2	DCOST	1	2	10.0	100.0						
13. C3.2	DPERF	1	2	10.0	50.0						
14. C4.2	N4B	N5B	1.0	SEND PROBLEM	AFFECTINGSRO	TO	ADHOC	ACTION	TEAM		
15. C4.2	DTIME	1	2	10.0	20.0						
16. C4.2	DCOST	1	2	10.0	100.0						
17. C4.2	DPERF	1	2	10.0	50.0						
18. C5.2	N4B	N6B	1.0	DOCUMENT	EVALUATION	DATA					
19. C5.2	DTIME	1	2	10.0	20.0						
20. C5.2	DCOST	1	2	10.0	100.0						
21. C5.2	DPERF	1	2	10.0	50.0						
22. C6.2	N6B	N5B	1.0	DRAFT ACTION	PLAN/POT	CORREC	ACTION	TO	ACTION		
23. C6.2	DTIME	1	2	10.0	20.0						
24. C6.2	DCOST	1	2	10.0	100.0						
25. C6.2	DPERF	1	2	10.0	50.0						
26. C7.2	N2B	N6B	1.0	GET COORDINATION/	ALTERNATIVE	ACTION	PLANS				
27. C7.2	DTIME	1	2	10.0	20.0						
28. C7.2	DCOST	1	2	10.0	100.0						
29. C7.2	DPERF	1	2	10.0	50.0						
30. C8.2	N6B	N7B	1.0	INITIATE	ACTION	PLAN					
31. C8.2	DTIME	1	2	10.0	20.0						
32. C8.2	DCOST	1	2	10.0	100.0						
33. C8.2	DPERF	1	2	10.0	50.0						
34. C9.2	N7B	N8B	1.0	UPDATE 402.2.5.3A1	WITH	ACTION	PLAN				
35. C9.2	DTIME	1	2	10.0	20.0						
36. C9.2	DCOST	1	2	10.0	100.0						
37. C9.2	DPERF	1	2	10.0	50.0						
38. ENDARC											
39. N1B	1	2	0	0							
40. N3B	2	2	0	0							
41. N2B	1	2	0	0							
42. N4B	2	2	0	0							

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	1234567890123456789012345678901234567890123456789012345678901234567890							
1	NEW NETWORK				PAGE 2			
	1	2	3	4	5	6	7	8
	1234567890123456789012345678901234567890123456789012345678901234567890							
43. N5B	2	1	0	0				
	+	+	+	+	+	+	+	+
44. N6B	2	2	0	0				
	+	+	+	+	+	+	+	+
45. N7B	2	2	0	0				
	+	+	+	+	+	+	+	+
46. N8B	2	1	0	0				
	+	+	+	+	+	+	+	+
47. ENDNODE								
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402.2.9.3A VERT INF OF PLANS  
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NEW NETWORK		PAGE 1						
	1	2	3	4	5	6	7	8
1234567890123456789012345678901234567890123456789012345678901234567890								
1. 0016 10	IMPLEMENTATION OF PLANS							
	+	+	+	+	+	+	+	+
2. C1.3	N1C	N2C	1.0 OBTAIN PLAN OF ACTION					
3. C1.3	DTIME 1	2	10.0	20.0				
4. C1.3	DCOST 1	2	10.0	100.0				
5. C1.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
6. C2.3	N1C	N2C	1.0 GET PM/ILSMT APPROVAL OF PROPOSED PLAN					
7. C2.3	DTIME 1	2	10.0	20.0				
8. C2.3	DCOST 1	2	10.0	100.0				
9. C2.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
10. C3.3	N1C	N2C	1.0 GET COORDINATION/PRESTAFFING SELECTED PLAN					
11. C3.3	DTIME 1	2	10.0	20.0				
12. C3.3	DCOST 1	2	10.0	100.0				
13. C3.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
14. C4.3	N2C	N3C	1.0 CARRY OUT COORDINATION OF ACTION PLAN					
15. C4.3	DTIME 1	2	10.0	20.0				
16. C4.3	DCOST 1	2	10.0	100.0				
17. C4.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
18. C5.3	N3C	N4C	1.0 SEND CORRECTIVE ACTION PLAN TO PMILSMT/ACTION TEAM					
19. C5.3	DTIME 1	2	10.0	20.0				
20. C5.3	DCOST 1	2	10.0	100.0				
21. C5.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
22. C6.3	N3C	N5C	1.0 SEND APPROVED PLAN FOR DISTRIBUTION					
23. C6.3	DTIME 1	2	10.0	20.0				
24. C6.3	DCOST 1	2	10.0	100.0				
25. C6.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
26. C7.3	N3C	N5C	1.0 UPDATE TASKS 402.2.1 - 4 WITH QUANTITATIVE DATA					
27. C7.3	DTIME 1	2	10.0	20.0				
28. C7.3	DCOST 1	2	10.0	100.0				
29. C7.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
30. C8.3	N5C	N6C	1.0 SEND RESULTS OF DEFICIENCIES TO PM/DF					
31. C8.3	DTIME 1	2	10.0	20.0				
32. C8.3	DCOST 1	2	10.0	100.0				
33. C8.3	DPERF 1	2	10.0	50.0				
	+	+	+	+	+	+	+	+
34. ENDARC								
	+	+	+	+	+	+	+	+
35. N1C	1 2 0 0							
	+	+	+	+	+	+	+	+
36. N2C	2 2 0 0							
	+	+	+	+	+	+	+	+
37. N3C	2 2 0 0							
	+	+	+	+	+	+	+	+
38. N4C	2 1 0 0							
	+	+	+	+	+	+	+	+
39. N5C	2 2 0 0							
	+	+	+	+	+	+	+	+
40. N6C	2 1 0 0							
	+	+	+	+	+	+	+	+
	1	2	3	4	5	6	7	8

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NEW NETWORK PAGE 2  
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41. ENDNODE  
1 2 3 4 5 6 7 8  
1234567890123456789012345678901234567890123456789012345678901234567890

## **ANNEX E**

### **STRUCTURED SYSTEMS ANALYSIS**

#### **Fundamentals**

**ANNEX E**  
**STRUCTURED SYSTEMS ANALYSIS**  
**—**  
**Fundamentals**

Structured Systems Analysis (SSA) has recently become an industry standard for generating Data Flow Diagrams (replacing "logic diagrams" or "flow charts") to aid in coordinating the functions to be performed by a computer program and its associated Inputs/Outputs (I/O). During the SSA, each set of "flow charts" can be checked by the potential user to assure that there is complete agreement on what is to be done by the program, and how it is to be accomplished. It also provides considerable flexibility for updating or changing the program.

Six basic elements (see Figure 1) are used in SSA:

1. Process (PRC)
2. Data Flow (DAF)
3. Data Store (DAS)
4. External Entity (EXT)
5. Data Flow Diagram (DFD)
6. Data Dictionary (DCT)

**PROCESS (Represented by a Circle):**

A function or operation to be performed which can be explained by a set of instructions representing a single task, e.g., "calculate interest on a loan", "prepare a draft report". If the Process description is too complex to describe in a few steps, it may be necessary to develop a lower level description (see below).

**DATA FLOW (Lines Interconnecting Processes or I/Os):**

Each function or Process cannot be a stand-alone in a complex network. To have any meaning in a program, each process must be initiated by a previous action and/or provided information on which to act. Furthermore, a Process must result in an output which is the input to the next logical Process. These inputs, outputs, or initiating actions are identified as Data Flows, and are represented by the Data Flow lines indicating its point of origin and the process to which it provides data.

**DATA STORE (Represented by two parallel lines):**

Although some Processes generate data used as input to a succeeding Process, there is often a need to "gather or collect" information from files in which it is stored. This information may come from an external source (such as a MIL-STD, Army regulation, historical experience files, etc.), or an internal source or file in which data is temporarily stored for use by succeeding processes. These Data Stores can be visualized as a "file cabinet", in which the data are stored for later retrieval).

**EXTERNAL ENTITY (Represented by a Rectangle):**

Each program or logical process must have an initiating action, a "point" of disposition of the results, and possible input guidance or instructions. Each of these have authorities, functions, or applications which are independent of the program Process (although required by the program Process). Thus, these activities, agencies, or facilities are considered "External Entities" to the program.

**DATA FLOW DIAGRAM:**

The general arrangement of the above can be readily seen. First, the circle or Process describes what has to be done; the interconnecting lines represent the Data Flows, together with the specific description of all I/Os. The Data Stores identify the source and/or file designation of a data base, and the External Entities represent those activities remote from the Process, which are the source of guidance or the recipients of the program. This combination of Processes, Data Flows, Data Stores, and External Entities constitutes a "Data Flow Diagram". The unique feature of the Data Flow Diagram (DFD) is that each process can be considered independently, permitting a change to be made in one Process without a major change in the overall program.

**DATA DICTIONARY:**

The Data Dictionary consists of a complete description of each of the basic elements. For the Process, it contains a step-by-step description of what has to be performed. The description of the Data Flow identifies the nomenclature of the data, a detailed description of its content, and its source. The Data Stores and External Entities are described, including possible location.

The Data Dictionary (a living document) begins with a description of the first Process and is continually built-up as the Data Flow Diagrams are expanded, detailed, and eventually completed.

#### **APPROACH TO PERFORMING STRUCTURED SYSTEM ANALYSIS:**

The best approach to Structured Systems Analysis is to assume that the program consists of a series of processes, each of which are to be assigned to an inexperienced analyst. Each analyst is to be walked through the assigned process of the Program, explaining step-by-step what functions have to be performed or what actions have to be taken to accomplish the process. The analyst is also informed where the information is coming from (input Data Flow), what is to be generated by each process (output Data Flow), where the data base may to be found (Data Stores), and who to contact for guidance (External Entities).

The best way to initiate a SSA is to set down the point of origin of a program, its final goal(s), and the intermediate functions or actions needed to get from beginning to goal. Each step should be considered as a Process - some may be sequential and others parallel. Then, the steps needed to accomplish the Process should be described. If the description is complex and needs intermediate steps, the Process is then a candidate for an "explosion". That is, the top (or upper) level Process is considered as a "project" and its own Data Flow Diagram is prepared.

When writing the step-by-step procedures in the Process, certain elements of data (or information) must be made available for the procedure. Each element of data is considered as an input Data Flow, which is identified and described. The product (or result) of a Process is an output Data Flow element.

Each Data Flow to the Process must originate from:

1. an earlier Process
2. a Data Store (or file)
3. an External Entity.

These sources are also identified, described and put into the Data Dictionary. As soon as the last portion of the Data Flow Diagram has been described, the SSA is complete.

The structured Analysis phase is followed by Structured Design, then by programming and finally software test and validation. The organization of Structured Analysis and its relationship to Structured System Design is shown on Figure 2.

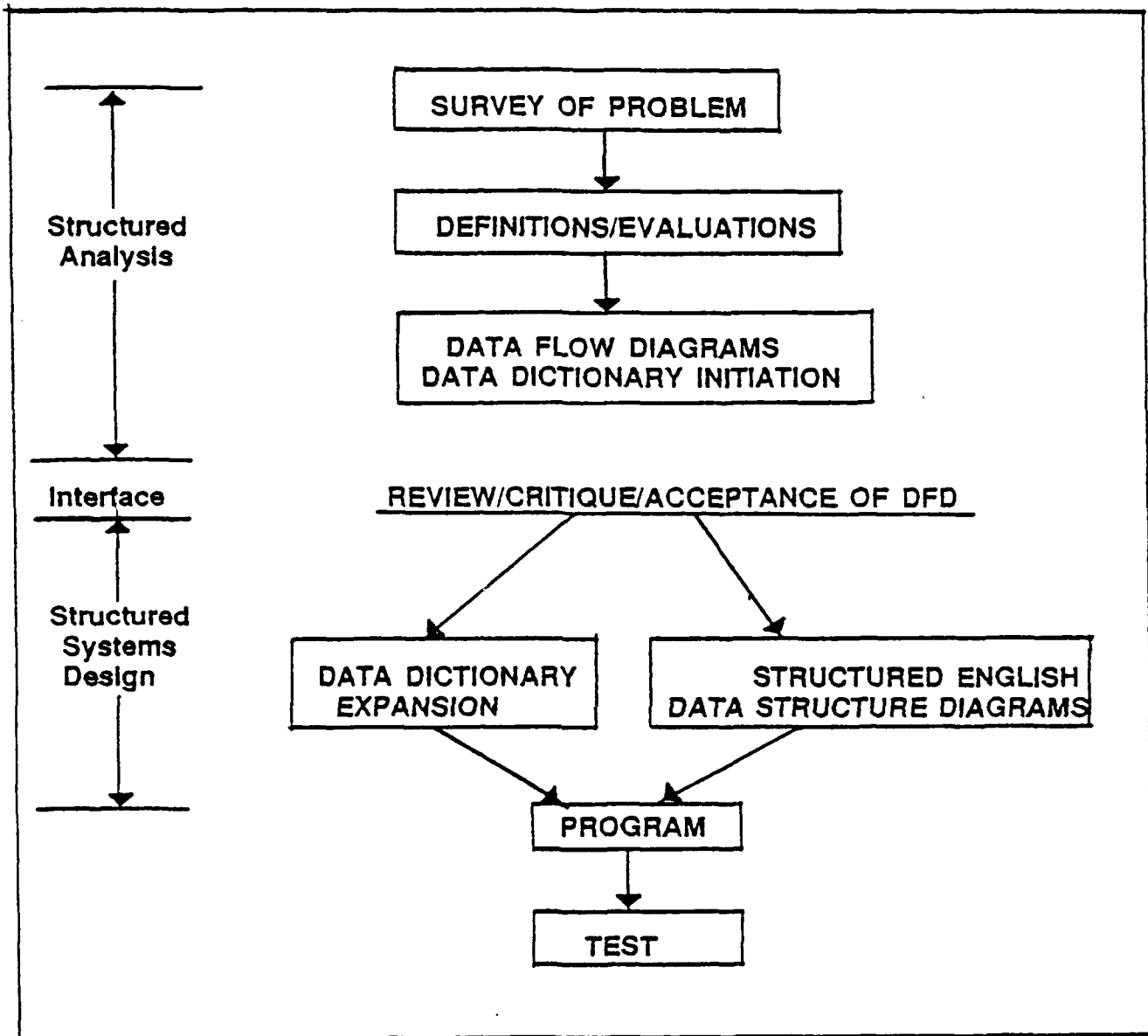


Figure 1. Structured Analysis & Structured Systems Design Organization

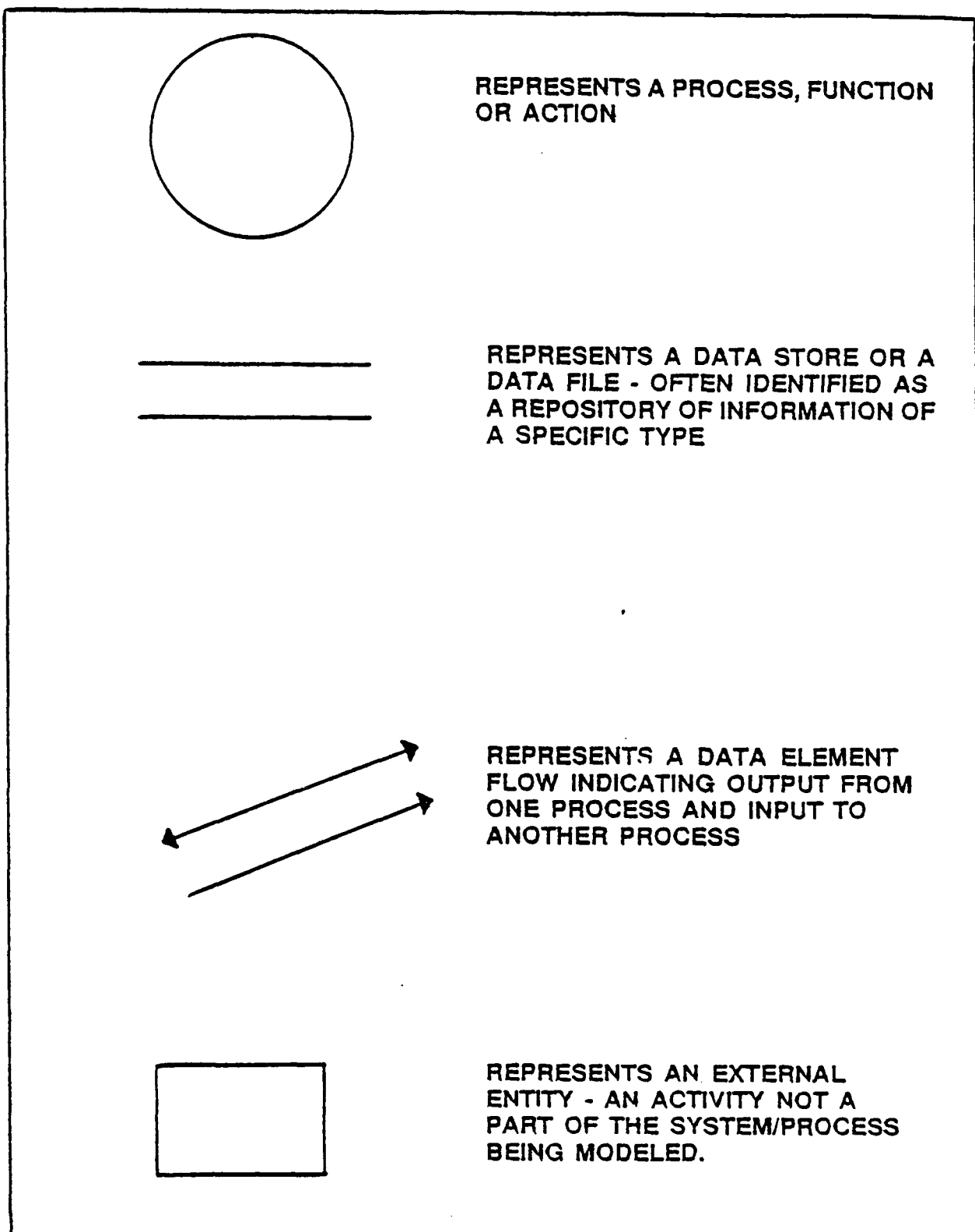


Figure 2. Standard DFD Symbol Definitions